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Ontario. Legislative Assembly. 9/1

SESSIONAL PAPERS

396

VOLUME XXXVI.—PART VII.

SECOND SESSION OF TENTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO.

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SESSION 1904.

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LIST OF SESSIONAL PAPERS.

ARRANGED ALPHABETICALLY.

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Accounts, Public	1	*Printed.*
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No. 2 . . . Estimates for the service of the Province until the Estimates of the year are finally passed. Presented to the Legislature, 28th January, 1904. *Not Printed.* Estimates for the year 1904. Presented to the Legislature, 5th February, 1904. *Printed.* Estimates for the service of the Province until the Estimates of the year are finally passed. Presented to the Legislature, 29th March, 1904. *Not Printed.* Estimates (Supplementary) for the year 1904. Presented to the Legislature, 23rd April, 1904. *Printed.*

No. 3 . . . Report of the Commissioner of Crown Lands for the year 1903 Presented to the Legislature, 14th March, 1904. *Printed.*

No. 4 . . . Report of the Clerk of Forestry for the year 1903. Presented to the Legislature, 7th April, 1904. *Printed.*

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No. 8 . . . Report of the Inspectors of Factories for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 9 . . . Report relating to the registration of Births, Marriages and Deaths for the year 1902. Presented to the Legislature, 4th February, 1904. *Printed.*

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No. 11 . . Loan Corporations. Statements by Building Societies, Loan and other Companies, for the year 1903. Presented to the Legislature, 7th April, 1904. *Printed.*

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No. 13 . . Auditors' Report to the Board of Trustees, University of Toronto, on Capital and Income Accounts, for the year ending 30th June, 1903. Presented to the Legislature, 4th February, 1904. *Printed.*

No. 14 . . Report of the Ontario Agricultural College and Experimental Farm, for the year 1903. Presented to the Legislature, 30th March, 1904. *Printed.*

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No. 15 . . Report of the Ontario Agricultural and Experimental Union of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 16 . . Report of the Fruit Growers' Association of the Province, for the year 1903. Presented to the Legislature, 15th April, 1903. *Printed.*

No. 17 . . Report of the Fruit Experiment Stations of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed*

No. 18 . . Report of the Inspector of Fumigation Appliances of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 19 . . Report of the Entomological Society, for the year 1903. Presented to the Legislature, 14th March, 1904. *Printed.*

No. 20 . . Report of the Bee-Keepers' Associations of the Province, for the year 1903 Presented to the Legislature, 15th April, 1904. *Printed.*

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No. 21 . . Hand-book for the use of Women's Institutes in Ontario. Presented to the Legislature, 10th February, 1904. *Printed for distribution only.*

No. 22 . . Reports of the Dairymen's Associations of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 23 . . Reports of the Live Stock Associations of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 24 . . Report of the Registrar of Live Stock of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 25 . . Report of the Farmers' Institutes of the Province, for the year 1903. Presented to the Legislature, 10th February, 1904. *Printed.*

No. 26 . . Report of Ontario Fairs and Exhibitions of the Province, for the year 1903. Presented to the Legislature, 10th February, 1904. *Printed.*

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No. 27 . . Report of the Bureau of Industries of the Province, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 28 . . Report of the Commissioner of Highways, for the year 1903. Presented to the Legislature, 7th March, 1904. *Printed.*

No. 29 . . Report of the Bureau of Labour, for the year 1903. Presented to the Legislature, 24th March, 1904. *Printed.*

No. 30 . . Report of the Ontario Game Commission, for the year 1903. Presented to the Legislature, 26th February, 1904. *Printed.*

No. 31 . . Report of the Department of Fisheries, for the year 1903. Presented to the Legislature, 5th April, 1904. *Printed.*

No. 32 . . Report of the Temiskaming and Northern Ontario Railway Commission, for the year 1903. Presented to the Legislature, 10th February, 1904. *Printed.*

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No. 33 . . Report of the Inspector of Division Courts, for the year 1903. Presented to the Legislature, 11th February, 1904. *Printed.*

No. 34 . . Report of the Inspector of Legal Offices, for the year 1903. Presented to the Legislature, 14th April, 1904. *Printed.*

No. 35 . . Report of the Inspector of Registry Offices, for the year 1903. Presented to the Legislature, 15th April, 1904. *Printed.*

No. 36 . . Report of the Provincial Board of Health, for the year 1903. Presented to the Legislature, 15th February, 1904. *Printed.*

No. 37 . . Report of the Secretary and Registrar of the Province, for the year 1903. Presented to the Legislature, 14th March, 1904. *Printed.*

No. 38 . . Report upon the Lunatic and Idiot Asylums of the Province, for the year ending 30th September, 1903. Presented to the Legislature, 26th February, 1904. *Printed.*

No. 39 . . Report upon the Prisons and Reformatories of the Province, for the year ending 30th September, 1903. Presented to the Legislature, 24th March, 1904. *Printed.*

No. 40 . . Report upon the Hospitals and Charities of the Province, for the year ending 30th September, 1903. Presented to the Legislature, 30th March, 1904. *Printed.*

No. 41 . . Report upon the Institution for the Education of the Blind, Brantford, for the year ending 30th September, 1903. Presented to the Legislature, 8th February, 1904. *Printed.*

No. 42 . . Report upon the Institution for the Education of the Deaf and Dumb, Belleville, for the year ending 30th September, 1903. Presented to the Legislature, 8th February, 1904. *Printed.*

No. 43 . . Report of Superintendent, Neglected and Dependent Children of Ontario, for the year 1903. Presented to the Legislature, 22nd February, 1904. *Printed.*

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No. 44 . . Report upon the Inspection of Liquor Licenses, for the year 1903. Presented to the Legislature, 11th March, 1904. *Printed.*

No. 45 . . Report of the Provincial Municipal Auditor for the year 1903. Presented to the Legislature, 4th February, 1904. *Printed.*

No. 46 . . Return from the Records of the several Elections in the Electoral Divisions of Muskoka, Sault Ste. Marie and North Renfrew since the General Elections of May 29th, 1902, shewing: (1) The number of Votes polled for each candidate in the Electoral District in which there was a contest; (2) The majority whereby each successful Candidate was returned; (3) The total number of Votes polled in each District; (4) The number of Votes remaining unpolled; (5) The number of names on the Voters' Lists in each District; (6) The population of each District as shewn by the last census. Presented to the Legislature, 21st January, 1904. *Printed.*

No. 47 . . Report upon the state of the Library. Presented to the Legislature 14th January, 1904. *Not printed.*

No. 48 . . Report of the Archivist, Ontario, for the year 1903. Presented to the Legislature, 14th April, 1904. *Printed.*

No. 49 . . Copy of an Order in Council advising that the tender of the Riordon Paper Mills, Limited, for the supply of Paper to the Province, for the ensuing five years, be accepted. Presented to the Legislature, 4th February, 1904. *Printed.*

No. 50 . . Copy of an Order in Council in accordance with the provisions of section 9 of the Act, respecting the Education Department. Presented to the Legislature, 4th February, 1904. *Not printed.*

No. 51 . . Copy of an Order in Council, advising that the Agreement for renewal of Contract between Warwick Brothers and Rutter, with reference to the Printing and Binding for the Province, be approved. Presented to the Legislature, 4th February, 1904. *Printed.*

No. 52 . . Copy of an Order in Council, respecting the commutation of the Surrogate Court Fees of the County of Huron. Presented to the Legislature, 8th February, 1904. *Not printed.*

No. 53 . . Copy of an Order in Council, respecting the commutation of Surrogate Court Fees of the County of Bruce. Presented to the Legislature 4th February, 1904. *Not printed.*

No. 54 . . Copy of an Order in Council, respecting the commutation of the Surrogate Court Fees of the Counties of York and Wentworth. Presented to the Legislature, 4th February, 1904. *Not printed.*

No. 55 . . Return to an Order of the House of the tenth day of June, 1903, for a Return of copies of all correspondence between the Government, or any member or department thereof, and any other person or persons, respecting the establishment of a Reformatory in the County of Oxford. Presented to the Legislature, 4th February, 1904. Mr. *Sutherland.* *Not printed.*

No. 56 . . Return to an Order of the House of the fourth day of June, 1903, for a Return of copies of all correspondence, papers, documents, decisions and memoranda in any way relating to the Mining Locations H.W.696, H.W.697, H.W.698 and H.W. 705, and particularly as to the southerly part of H.W. 697, containing thirteen acres, granted to one Gideon Lariviére, which locations, are situate on, or near the North Pay of Sturgeon Lake in the District of Thunder Bay. Presented to the Legislature, 4th February, 1904. Mr. *St. John.* *Not printed.*

No. 57 . . Return to an Order of the House, of the twelfth day of June, 1903, for a Return.—similar to that ordered by the British House of Commons on the 25th day of June, 1902, of reproductive undertakings operated by Municipal Boroughs in Great Britain—respecting waterworks, electric lighting plants, gas works and other public utilities operated by Municipalities in the Province of Ontario, also the rates charged the consumers in the various Municipalities of the Province for water, gas and electric lighting. Presented to the Legislature, 4th February, 1904. Mr. *Preston (Brant).* *Printed.*

No. 58 . . Return to an Order of the House, of the fourth day of June, 1903, for a Return of copies of all correspondence between the Minister, or Commissioner of Public Works, or Fisheries, or other officer, or *employe*, of or under them, or either the Departments of Public Works, or Fisheries, and any other person or persons, and also any order or directions, or papers, or entries respecting the

granting of licenses for pound net fishing, east of a line running from Cape Hurd to the mouth of the Spanish River, during the years 1899, 1900, 1901 and 1902, or either or any of them. Also, copies of all such licenses granted during the above years, or either, or any of them. Presented to the Legislature, 4th February, 1904. Mr. *Smyth*. *Not printed.*

No. 59 . . Return to an Order of the House, of the 8th day of June, 1903, for a Return of all copies of all forms of application or subscription for terminating stock and of all forms of certificates of such stock used by Loan Corporations doing business in the Province. Presented to the Legislature, 4th February, 1904. Mr. *Downey*. *Not printed.*

No. 60 . . Return to an Order of the House, of the fourth day of June, 1903, for a Return of copies of all correspondence, between the Metropolitan Power Company, or their Solicitors, and the Government for a grant of land under the waters of the Ottawa River, and all papers in connection therewith. Presented to the Legislature, 4th February, 1904. Mr. *Matheson*. *Not printed.*

No. 61 . Copy of an Order in Council and Report of Registrar of Loan Corporations in the matter of the Canadian Co-operative Alliance. Presented to the Legislature, 5th February, 1904. *Not printed.*

No. 62 . . Copy of an Order in Council respecting Surrogate Court Fees to be paid to His Honour Judge Holt. Presented to the Legislature, 10th February, 1904. *Not printed.*

No. 63 . . Copy of an Order in Council respecting Surrogate Court Fees to be paid to His Honour Judge Jamieson. Presented to the Legislature, 10th February, 1904. *Not printed.*

No. 64 . . General Rules and Orders made by the Court of Appeal for Ontario respecting the trial of Election Petitions pursuant to the Controverted Elections Act, R.S.O., 1897, cap. 11, and amending Acts. Presented to the Legislature, 12th February, 1904. *Printed. For distribution only.*

No. 65 . . Return to an Order of the House, of the eighth day of February, 1904, for a Return shewing the names of all persons at Sault Ste, Marie, or elsewhere, who have been paid by the Government under the decision, or determination, to pay the wages of workmen at Sault Ste. Marie, and showing also the amount paid in each case and the nature of the claim in each case. Presented to the Legislature, 15th February, 1904. Mr. *Whitney*. *Printed.*

No. 66 . . Return to an Order of the House, of the tenth day of February, 1904 for a Return shewing the number of students admitted to (a) the Normal Schools of the Province since September, 1903. (b) How many (if any) of such students, prior to admission, taught less than twelve months in a Public School and (c) How many (if any) did not attend a Model School course and secured a certificate of competency therefrom. Presented to the Legislature, 16th February, 1904. Mr. *Hoyle*. *Not printed.*

No. 67.. Copy of an Order in Council, commuting the fees of F. H. MacDonald, Local Master at St. Catharines. Presented to the Legislature, 18th February, 1904. *Not printed.*

No. 68... Return to an Order of the House of the twenty-sixth day of June, 1903, for a Return shewing:—1. The total area of Crown Lands under timber License. 2. The total area of Crown Lands under timber License in arrears. 3. The number of timber Licenses in arrear, their locations, respective areas, the names of those persons so in arrears, and the amounts that each of such persons are in arrear, and for what respectively. 4. The number of timber Licenses cancelled since and including 1891, and the number of acres of Licenses so cancelled. 5. The nature and extent of the securities (if any) held by the Government, for payment of such areas, and, the names of the persons so giving security. 6. The number of timber Limits disposed of otherwise than by Public Auction, since and including the year 1891, specifying the details thereof, as to time, place, person and prices respectively. 7. The number of pieces of saw-logs cut under License in the Province of Ontario, each year since and including 1891; the aggregate quantity of lumber, board measure, returned to the Crown Lands Department for each of the said years since and including 1891; the amount of Crown dues collected for each of the said years from the lumber cut, giving the quantity for each separate price charged for dues. 8. The number of pieces of waney or board timber cut under license in each of the said years and the aggregate quantity of cubic feet and the amount of Crown dues collected on the same. 9. The number of pieces of square timber cut and the quantity of cubic feet returned as contained in same and the amount collected for each of the said years thereon, for Crown dues. Presented to the Legislature 18th February, 1904, Mr. *St. John.* *Printed.*

No. 69.. Return to an Order of the House of the fifteenth day of February, 1904, for a Return of copies of all complaints received by the License Department against W. S. Cowan, formerly inspector of licenses for South Wellington; also, for a copy of the report of the investigation into such complaints, including the evidence; also, for a copy of the report of the Inspector who investigated the complaints, and also, for a copy of all correspondence touching the dismissal of the said W. S. Cowan. Presented to the Legislature, 22nd February, 1904. Mr. *Downey.* *Not printed.*

No. 70.. Return to an Order of the House of the nineteenth day of February, 1904, for a Return of copies of all correspondence between the Inspector of Prisons and Charities, or other official of the Government, and the County of Ontario, having reference to the salary of the County Gaoler. Presented to the Legislature 22nd February, 1904. Mr. *Hoyle.* *Not printed.*

No. 71.. Copy of Memorandum of Agreement between His Majesty, represented by the Commissioner of Crown Lands and Edward Wellington Backus, of the City of Minneapolis. Presented to the Legislature 23rd February, 1904. *Not printed.*

No. 72.. Return to an Order of the House of the twelfth day of February, 1904, for a Return, shewing in the same detail as in the Public Accounts of the Province, all expenditures up to 31st December, 1903, on account of the Temiskaming and Northern Ontario Railway, giving in detail the amount paid, to whom and on what account. And, in the case of the payments to the contractors for the building of the road—shewing all the quantities of rock and other material moved: masonry constructed and generally, all quantities on which payments are based, with the amount paid therefor upon each section of road. Presented to the Legislature, 29th February, 1904. Mr. *Matheson*. *Printed.*

No. 73.. Return to an Order of the House of the nineteenth day of February 1904, for a Return of copies of all correspondence between the Government, or any officials thereof, and any person or persons, regarding the establishment of Savings Banks in connection with the Schools of the Province. Presented to the Legislature, 29th February, 1904. Mr. *Preston (Brant.)* *Not printed.*

No. 74.. Return to an Address to His Honour the Lieutenant-Governor of the twenty-second day of February, 1904, praying that he will cause to be laid before this House, a Return of copies of all Orders in Council with reference to the payment of *employes* at Sault Ste. Marie, together with copies of all correspondence previous to, after and in any way relating to such payments. Presented to the Legislature, 1st March, 1904. Mr. *Whitney*. *Printed.*

No. 75 .. Return to an Order of the House of the twenty-sixth day of February, 1904, for a Return of copies of all correspondence with the Government, or other person, relating to the appointment of one Kelly, as constable, or peace officer, in and about Killarney, together with copies of all correspondence between the Government and one Charles Noble in connection therewith. Presented to the Legislature, 1st March, 1904. Mr. Gamey. *Not printed.*

No. 76 .. Return to an Order of the House of the twenty-fourth day of February, 1904, for a Return of copies of all correspondence, papers and pay sheets, between the Government, or any member or official thereof, in connection with the expenditure of all moneys expended last year, on Colonization Roads in the County of Addington. Presented to the Legislature, 1st March, 1904. Mr. Reid. *Not printed.*

No. 77 .. Return to an Order of the House of the twelfth day of February, 1904, for a Return of copies of all correspondence between the Government or any member, or official thereof, or persons on its behalf, and any other person or persons in connection with the appointment of William Coats, as Registrar of the County of Huron. Presented to the Legislature, 7th March, 1904. Mr. Eilber. *Not printed.*

No. 78 .. Statement of distribution of Revised and Sessional Statutes up to 31st December, 1903. Presented to the Legislature, 9th March, 1904. *Not printed.*

No. 79 . . Return to an Order of the House of the twenty-ninth day of February 1904, for a Return shewing: 1. The amount of money paid as, Railway Subsidies from 1867 up to and inclusive of 1903. 2. The name of each Railway and the amount paid as Subsidy thereto. 3. The amount of money voted for Railway Subsidies, but not yet earned. 4. The amounts in acres voted and set apart as Land Grants, during the same period. 5. The names of all Railways which have earned the apportionment of land so set apart. 6. The amount in process of being earned. Presented to the Legislature, 9th March, 1904. Mr. Preston, (Durham.) *Not printed.*

No. 80 . . Return to an Order of the House of the Seventh day of March, 1904, for a Return, shewing the number of Saloon Licenses in the different Cities of the Province during the years 1901 and 1903. Also, the number of Saloon Licenses in the Towns of the Province, during the same period. Also, the number of Wholesale Licenses granted in rural municipalities, in the Province, during the same, period. Presented to the Legislature, 10th March, 1904. Mr. *Barr. Not printed.*

No. 81 . . Return to an Order of the House of the Eleventh day of March, 1904 for a Return of copies of all correspondence, between the Government, or any official thereof, and the President of the Children's Aid Society of Brockville, or any other person or persons, in reference to the arrest and imprisonment of certain young lads in 1902, 1903 and 1904. Presented to the Legislature, 18th March, 1904. Mr. *Graham. Not printed.*

No. 82 . . Return to an Address to His Honour, the Lieutenant-Governor, of the fourth day of March, 1904, praying that he will cause to be laid before this House, a copy of all Orders-in-Council, authorizing or permitting an increase in the capital stock of the Peoples' Life Insurance Company, during the last two years, together with copies of all correspondence in any way relating thereto. Presented to the Legislature, 24th March, 1904. Mr. *Gamey. Not printed.*

No. 83 . . Return to an Order of the House, of the twenty-fifth day of March, 1904, for a Return shewing the names of all persons convicted for violation of any of the provisions of the Liquor License Act in the County of Carleton during the years 1901, 1902 and 1903, with the amounts of fines and costs imposed in each case respectively and showing, as well, the particular offence of which they were convicted and dates of conviction. Presented to the Legislature, 29th March, 1904. Mr. *Kidd. Not printed.*

No. 84 . . Return to an Order of the House, of the twenty-fifth day of March, 1904, for a Return, in detail of all payment made by the Commissioners of the Queen Victoria Niagara Falls Park, for the year 1903. Presented to the Legislature, 29th March, 1904. Mr. *Jessop. Not printed.*

No. 85 . . Return to Orders of the House, of the fourteenth, twenty-first (two orders), and twenty-fifth days of March, 1904, for Returns shewing:—

1. The names of the various companies included in the Consolidated Lake Superior Companies, which the Government proposes to aid by the $2,000,000 guarantee. 2. The names of the secured creditors of each company and the amount of the claim of each and the security held by each. 3. The names of the unsecured creditors of each company and the amount of claim of each. 4. Shewing what portion of the Algoma Central Railway is already completed, how much partly constructed and what construction work has been done on the part incomplete. 5. Shewing what portion of the road has been operated and what net earnings, if any, it has shewn. 6. The names of the vessels which it is proposed to give the Province as security, with statement shewing what these vessels have earned, net, in the hands of the Companies. Also, shewing full particulars of all claims, charges, judgments and priorities chargeable against the Superior Consolidated Companies and the Algoma Central Railway: the names of all the creditors and the nature and amount of their respective claims, and particulars of all assets on which are based, and subject to which it is the intention of the Government to guarantee the sum of $2,000,000 to such companies as embodied in the Bill introduced to this House, before the second reading of such Bill. Also, shewing: 1. What lands and securities are governed by the Lien of Messieurs James Conmee, M.P.P., and Charles M. Bowman, M.P.P., against the Algoma Central and Hudson Bay Railway Company, for upwards of $400,000, dated on or about the 22nd day of September, 1903. 2. Whether the judgment of James Conmee, M.P.P., and Charles M. Bowman, M.P.P., against the Algoma Central and Hudson Bay Railway Company for upwards of $400,000, and dated on or about the 12th day of October, 1903, is still a charge on the assets of this company. 3. And shewing the amount of the said Judgment at the present time. And also, shewing the names of the allied industries referred to in section 1 of Cill (No. 129), Respecting Aid to the Algoma Central and Hudson Bay Railway. 2. A copy of the Mortgage referred to in subsection 1 of said section 1. 3. A copy of the Mortgage referred to in subsection 2 of said section 1. 4. A copy of the Promissory Note referred to in subsection 3 of said section 1. 5. A copy of the Stock Certificates of the Stock referred to in subsections 4 and 5 of said section 1. 6. A copy of the Trust Deed, or any draft thereof, referred to in section 2. 7. A copy of the Guaranty referred to in section 3. 8. Shewing what amount is referred to in subsection 3 of section 4. 9. How many Directors are provided for the re-organized Company. 10. A copy of the Deed, or any draft thereof, referred to in subsection 10 of section 4. 11 A copy of the plan of re-organization referred to in subsection 11 of section 4. Presented to the Legislature, 11th April, 1904. Messieurs *Hanna* and *Pyne*. *Printed.*

No. 86 . . Return to an Order of the House, of the sixteenth day of March, 1904, for a Return shewing the copyrighted selections and extracts from authors, used in the authorized text-books of the Public Schools, indicating in each case, the pages and the names of the persons or company controlling the copyrights. Presented to the Legislature, 7th April, 1904. Mr. *Nesbitt*. *Not printed.*

No. 87 . . Return to an Order of the House, of the second day of March, 1904, for a Return, shewing all payments under the San Jose Scale Act, as follows:—1st. Amount paid to the owners of trees destroyed. 2nd. Amount paid to officers of the Province for enforcing the Act, and 3rd. In what Counties the trees were destroyed. Presented to the Legislature, 7th April, 1904. Mr. *Lee*. *Not printed.*

No. 88 . . Return to an Order of the House of the fourteenth day of March, 1904, for a Return, giving copies of all correspondence between any person or official, on behalf of the University of Toronto and any member of the Government, with reference to the construction of a Physical Laboratory for the University. Also, copies of the Statute of the Senate of the University providing for the establishment of a Department of Forestry in the University, together with copies of all correspondence relating to the establishment of such Department. Presented to the Legislature, 7th April, 1904. Mr. *Whitney*. *Not printed.*

No. 89 . . Return to an Order of the House of the sixteenth day of March, 1904, for a Return of copies of all correspondence between the Government, or any Official thereof, and any person or persons, regarding the issue of licenses for the use of pound nets on Lake Nipissing. Presented to the Legislature, 8th April, 1904. Mr. *Little (Cardwell.)* *Not printed.*

No. 90 . . Return to an Order of the House of the Eleventh day of March, 1904, for a Return of copies of all correspondence between the Government, or any official thereof, and any other party or parties regarding the issue of pound-net fishing licenses in 1902 and 1903 in the waters between Killarney and Little Current, known as the North Channel. Presented to the Legislature 8th April, 1904. Mr. *Gamey*. *Not printed.*

No. 91 . . Return to an Order of the House of the sixteenth day of March, 1904, for a Return giving the names of Public School Inspectors since 1870, in Ontario. Also, the class of certificates they hold, or held, and shewing as well, the standing which each one obtained on their respective examinations entitling them to act as Inspectors of Public Schools. Presented to the Legislature, 20th April, 1904. Mr. *Gamey*. *Not printed.*

No. 92 . . Return to an Order of the House of the twenty-fifth day of March, 1904, for a Return of papers and all correspondence in connection with the issue of Patent for the south half of lot No. 8 in the 4th Concession of the Township of Hutton, in the District of Nipissing. Presented to the Legislature, 23rd April, 1904. Mr. *Matheson*. *Not printed.*

No. 93 . . Return to an Address to His Honour the Lieutenant-Governor of the twenty-second day of April, 1904, praying that he will cause to be laid before this House, a Return of a copy of the Judgment of the Judicial Committee of the Privy Council in the case of the Ontario Mining Company *et al.*, *vs.* Seybold *et al.*, together with a

copy of the agreement between Counsel for the Dominion of Canada and the Province of Ontario arising out of the argument of the said Appeal. Presented to the Legislature 23rd April, 1904. Mr. *Cameron (Huron.)* *Printed.*

No. 94 . . Return to an Address to His Honour the Lieutenant-Governor, of the twenty-second day of April, 1904, praying that he will cause to laid before the House. a Return of a copy of the Judgment of the Court of Appeal for Ontario, in answer to certain questions submitted. involving the validity of legislation by the Province respecting the profanation of the Lord's Day, and also the notes of argument and judgment of the Judicial Committee of the Privy Council upon the appeals thereto. Presented to the Legislature 23rd April, 1904. Mr. *Little (Norfolk.)* *Printed.*

ANNUAL REPORTS

OF THE

DAIRYMEN'S ASSOCIATIONS

OF THE

PROVINCE OF ONTARIO,

1903.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE.)

PRINTED BY ORDER OF

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OFFICERS FOR 1904.

DAIRYMEN'S ASSOCIATION OF WESTERN ONTARIO.

Honorary President—Hon. Thomas Ballantyne, Stratford.
Honorary Vice-President—Harold Eagle, Attercliffe Sta.
President—J. N. Paget, Canboro.
First Vice-President—Robert Johnston, St. Thomas.
Second Vice-President—I. W. Steinhoff, Stratford.
Third Vice-President—Thos. Ballantyne, Jr., Stratford.
Secretary-Treasurer—George Hately, Brantford.
Auditors—J. A. Nelles, London; George Smith, Woodstock.

Directors.

7. John McQuaker, Owen Sound.
8. W. R. Shearer, Villa Nova.
9. John Brodie, Mapleton.
10. James Connolly, Porter's Hill.
11. W. K. MacLoed, Vanneck.
12. W. A. Bothwell, Hickson.
13. A. F. MacLaren, M.P., Stratford.

Representatives to Industrial Fair, Toronto—A. F. MacLaren, J. N. Paget.
Representatives to Western Fair, London—I. W. Steinhoff; John R. Isaacs, London.

DAIRYMEN'S ASSOCIATION OF EASTERN ONTARIO.

President—D. Derbyshire, Brockville.
First Vice-President—J. R. Dargavel, Elgin.
Second Vice-President—John McTavish, Vancamp.
Third Vice-President—L. L. Gallagher, Wilton.
Secretary—R. G. Murphy, Brockville.
Treasurer—J. R. Dargavel, Elgin.
Auditors—{ Morden Bird, Stirling. / F. W. Brenton, Belleville.

Directors.

1. Edward Kidd, North Gower.
2. William Eager, Morrisburg.
3. Levi Patton Brockville.
4. James Whitton, Wellman's Corners.
5. T. B. Carlaw, Warkworth.
6. Henry Glendinning, Manilla.

DAIRYMEN'S ASSOCIATION OF WESTERN ONTARIO.

ANNUAL MEETING.

The thirty-seventh annual meeting of the Dairymen's Association of Western Ontario was held in the Opera House, St. Thomas, on January 12th, 13th and 14th, 1904. There was a large attendance, and great interest and enthusiasm were manifested by the officers and members of the Association.

PRESIDENT'S ADDRESS.

By James Connolly, Porter's Hill.

I am pleased to welcome you to the thirty-seventh annual convention of the Dairymen's Association of Western Ontario, being the first convention of this Association ever held in this beautiful and prosperous city of St. Thomas.

Most of those present at the meeting in Ingersoll in the year 1868, when the Association was first organized, have passed away, but there are still a number of us, notably the Hon. Thos. Ballantyne, who has, ever since its organization, been connected with the Association as Director, President, and Honorary President. Mr. Ballantyne is still active, and is to be with us at this convention, and to take an active part in the proceedings at the Wednesday evening session. I trust that every member of the Association will be present, as it will be an interesting occasion.

We have to mourn the loss by death of one of our former Presidents, Mr. Andrew Pattullo, M.P.P. Mr. Pattullo was Director for a number of years in the nineties, and filled the Presiden's chair in 1894 and 1895. He was a man of great ability, and did much in his time to promote the interests of dairymen. I am sure I may express the warmest sympathy of this Association to the family of the late Mr. Pattullo.

The year just closed has been a profitable one for the dairymen of this Province. Good prices prevailed during the greater part of the season. The weather conditions were favorable for a large make, there being ample moisture to keep the grass fresh and green during the whole season, nor was there any extreme heat to spoil the product after it was made. These are very important factors in making a successful dairy season.

While the ordinary milk producer cannot make good prices or favorable weather conditions, there are many conditions which he can control, and which tend to make dairying more profitable.

In a good season, such as the one just closed, it is the time to prepare for seasons not so favorable, because bad seasons are sure to come sooner or later. Of all the different classes of people engaged in dairying, the milk producer is the one most affected by low prices or bad seasons, and therefore he is the man who should be thinking and doing, and have preparations made that would tide him over bad seasons.

Cheaper cost of production is the first thing to be studied by the milk producer. We find manufacturers and business men of all kinds studying the question of cheaper production, that they may be in a position to carry on their businesses successfully in times of keen competition and low prices.

How can dairymen produce their milk and have it prepared for the factory more cheaply? Not by having cheap frame factories with poor machinery, and bad makers working for small wages. Not by having a herd of poor cows, because they can be bought at low prices. The very opposite must be done. The factories must be built so

that the temperature can be controlled in all kinds of weather. The best machinery that can be procured should be obtained. The best is the cheapest in the end. The herds must be composed of good milch cows, wasting neither time nor feed on bad ones. A good cow takes no more room, or feed, or care than a poor one. Last, but not not least, be sure to employ good, experienced, and skilful makers, no matter what they may cost you. Go without the skilful maker, and you cannot manufacture the cheese or butter that will bring the highest prices, or have the qualities to meet the keen competition in the markets of the world.

The quality of the milk is another very important factor in the cheap production of both butter and cheese. Milk or cream not properly cared for will neither produce as good nor as much butter or cheese as the same milk or cream had it been properly cared for. A first-class quality of butter or cheese cannot be made unless the maker has first been supplied with good, clean, pure milk or cream. You cannot expect to get top prices or to keep up our reputation as a dairying country unlesss you supply and continue to supply a first-class article to the consumer.

Co-operation is another and a very important factor in the question of the cheap production of cheese and butter. If the farmers and makers will work together, not for some selfish end, but for the general good, the cost of manufacture in some localities will be very much reduced. While in some districts we find that the farmers are working together and are all sending their milk to the factory, and in as good condition as possible, doing all they can to assist the maker, in other districts we find very little co-operation, in some none at all, only one farmer here and another there sending their milk to the factory, and probably, not particular as to the condition in which they send it. This want of co-operation goes to increase the cost of manufacture, for the cost of the haulage of the milk is by this method greatly enhanced, and this cost of haulage is the chief item of expense. As an illustration, it may be mentioned that in some districts, where farmers co-operate together, take great care of the milk, and make a specialty of the business, the cost of haulage does not exceed 35 cents per hundred pounds cheese; while in other districts, where there is little or no co-operation, it is costing $1.25, and sometimes more. In some factories milk is all delivered by the patrons, but, even where haulage has to be paid for, there are some factories where the cost of manufacture is not one cent per pound of cheese, while in other factories it is 2 1-4 to 2 1-2 cents per pound of cheese. You can easily see that with low prices this means just the difference between profit and loss, and in the best managed districts, even with low prices, the producers can make money, if encouraged to keep on, and are in a position to take advantage of the good times, when they return.

After the farmer has done his best to produce a supply of good, clean, pure milk, after his milk has been hauled to the factory with the greatest care, after the maker has successfully converted this milk into the very best cheese and butter, all these efforts will have been to some extent wasted, if good curing rooms at the cheese factories, and cold storage at the creameries, have not been provided.

Why has the consumption so rapidly increased during the last two seasons? Not because the cheese were cheaper, for they were very much dearer. It was because the weather was favorable, and it was possible to place the cheese on the British market in good condition and suited to the tastes of the people, who constantly consumed more of it. We all know that, in order to get people to consume our produce, we must supply them with what they want, or they will buy from other people.

The effect of the weather conditions during the last two seasons in enabling us to supply a first-class article of cheese brings home to us the question, How can the conditions of production and haulage of milk, and manufacture, curing and transportation of cheese be so controlled that we can make cheese of equal quality in the most unfavorable seasons? In the first place it is necessary that the cows

should have amply supply of pure water, should be provided with plenty of fodder, which should take the place of dried up pastures, and should have protection against the heat. It has been suggested that all milk wagons should have coverings, the same as some have now. The making and press rooms should be good. It should be possible to arrange the curing rooms either with cold air ducts or with ice, possibly with the assistance of fans, so that the temperature is always even and mild. Then the products should be delivered to the cars in good strong boxes, and in wagons protected from the sun and from the rain. The buyers and the Government will take care of the transportation conditions. The Dominion Government has gone to much trouble and expense in fitting up steamers and cars, and there should be no excuse for cheese or butter to be landed at the British ports in poor condition. As an illustration that it is possible to maintain an even temperature in buildings, I may mention that in an office building, where about 700 employees are engaged, the temperature inside the building never varies over about two degrees, being the same summer and winter. The windows of this building are never opened, yet the air is always pure and sweet, showing that the regulation of temperature can be successfully controlled.

Just here I may mention that it will be brought out in reports to be submitted at the convention that the directors visited a great number of the factories and can speak from personal experience as to their conditions, and can assure you that in every case there was room for improvement, and that some could be best improved by being wiped off the face of the earth.

To assist the farmers in disseminating information in regard to all these matters, the Association will endeavor to furnish speakers to attend the annual meetings of the various factories, to encourage the patrons to work more together and to try and improve the condition of things generally, so as to be able to make a first-class article that we may keep up our reputation as a dairy people.

The forming into groups, of about 20 each, of the factories under our jurisdiction, each group under the supervision of an Inspector, appointed by the Association, is a move in the same direction, as the Instructors not only assist the makers, but hold public meetings of the patrons at all the factories where the patrons will attend, trying to impress upon the milk producer the great importance of sending pure milk to the factory. The Association has found that the system had given satisfaction, and has accomplished much good during the past season. It is intended to extend the system this year, and to ask the assistance of the dairymen of Western Ontario, so that all their factories may be included in one or other of the groups.

Last year, at Brantford, Mr. C. C. James, Deputy Minister of Agriculture, delivered a splendid address on the education of the girls on the farms, and the improvement of farm home life. This evening Mrs. Howie is to deliver an address on "Home Making." I mention this now, because I consider co-operation in the dairy business, by which so much work is saved to the women on the farms, is one of the greatest means for improving home life in the country.

I have before me figures showing the counties and district composing the territory under the jurisdiction of this Association, together with the production of milk and cheese, and the amount realized for the same during the year 1903. The amounts, while being estimates, may be relied upon as being nearly correct.

The territory includes 26 counties and districts, with 246 cheese factories, which handled 52,000,000 gallons of milk, from which was made 24,000 tons of cheese, and for which was realized about $5,000,000.

To this add the amounts for butter made at creameries, and in private dairies, and the amounts realized for the hogs, raised owing to dairying, the amounts realized for milk sold to the evaporators, and other processes, and the amounts realized for milk supplied to the homes ; and you have easily a value of the products of the dairies of

Western Ontario of $10,000,000. To this Association has the duty been hitherto assigned of fostering this immense industry, although its energies have hitherto been nearly altogether devoted to the branch known as co-operative dairying, through the factory system.

Some time ago the Hon. Sydney Fisher at one of our conventions sounded a warning note, and advisedly, that we had probably reached our limits in the profitable production of cheese. It appeared so at the time, but not now for cheese. Nor yet for butter. We are having, and will have, more countries competing with us for the world's markets, but the markets are enlarging. The world is growing to us through our rapidly improving transportation facilities. Hitherto we have considered Great Britain, with its fifty millions, as our only market. But we are on the highway to the populous Asiatic countries, with their thousand millions, and we will in the course of time have them as our customers of dairy products, possibly not as cheese and butter, but, if not, then in some other form. This Canada of ours is a great and wonderful country. How great and wonderful none of us can yet possibly realize, but one thing we know, that this peninsula is its garden, its market garden.

I have been Director of your Association for eight years, and President for one year, during which time I think I have attended every meeting of the Board, and of the Committees of which I have been a member, and feel that I know something of its workings. On your Board you have had able men, practical men, men thoroughly conversant with the business as producers, manufacturers, or dealers, men who have always devoted a great deal of their valuable time to the service of the Association, and have been always ready to do its work when called upon, all without fee or reward. It is understood that the custom of a President being re-elected for a second term will not in future prevail, but that, the Association being so large, and so many good men coming to the front year by year, a new President will be appointed annually.

Therefore, having filled my year of office as President, I would like to testify to the great assistance given to the dairy industry by the Departments of Agriculture, both of the Dominion and of the Province. But I particularly desire, and I know I speak for every member of the Board, to thank our own Minister of Agriculture, Hon. John Dryden, for his ever great kindness and courtesy, whenever we have had to confer with him in the interests of the Association. Mr. Dryden has always been ready to discuss matters freely and frankly with the Board, and he has done what he could to further whatever conclusions we have arrived at as best in the interests of the industry, both with his counsel and with his influence, to secure the necessary grants of funds. In this connection it is only right that I should call attention to some methods that have been recently adopted, methods which it has been thought expedient to adopt temporarily, but which, I personally think, we should be careful to see are not adopted permanently. I refer to a divided responsibility of certain of the officers. It was thought expedient, for certain reasons, that the Chief Instructor and the Butter Instructors should be appointed by the Department of Agriculture on the nomination of the Board, the Cheese Instructors being appointed by the Board, subject to dismissal by the Chief Instructor Under present conditions this works well, but if continued the custom will become crystallized, and we cannot expect to have the exceptionally good man we have now for ever. Besides there are changes that can be easily imagined, changes occurring in the Department, in the officers, and in the Board itself, that would make the present method entirely unworkable. A change would then have to be made, which would result in the work being all centralized in Toronto, and done by paid officials, and, no doubt, done well; or it would have to be done as formerly entirely through your Association, through your representative Board, which you should continue to see is constituted of capable men in whom you have every confidence. As I said before, I think it right to call the attention of the members to this matter, my present position enabling me to do so without prejudice. I trust that the subject will receive consideration by my successors, and by the powers that be. I will leave this subject with two thoughts :

"A Minister may arise who knows not Joseph," and "A man cannot well serve two masters."

The World's Fair at St. Louis is to be held this year. Inquiries have been sent out from the Dairy Commissioner's office at Ottawa to ascertain the views of representative dairymen, regarding the advisability of exhibiting dairy products at that Exhibition. The general opinion seems to have been that it is hardly worth while to exhibit, that the money so saved could be spent in other ways to better advantage. The trouble with this is that the money so saved would probably not be appropriated to expenditure in any other way. Still, it would perhaps not be advisable to exhibit, unless we were given very favorable conditions, and that arrangements were made so that our exhibits could be sold in St. Louis free of duty. A good exhibit would doubtless be a good advertisement to Canada among the visitors that would be there assembled from many nations.

I cannot let this occasion pass without noting that one who has attended so many of our conventions and assisted us so much, and has done so great things for the dairy industry of Canada, will not be present with us at this time. I refer to Prof. Robertson. I trust he is returning with renewed health, and that he will be able to take up his work with his accustomed vigor.

I hope I have not wearied you with the length of my address. The importance of the subjects must be my excuse. I trust that everyone will attend regularly and take an interest in the proceedings of the convention, so that each one may derive the greatest profit from the discussions.

I have now much pleasure in calling upon Mr. Daniel Derbyshire, President of the Eastern Ontario Association, who is no stranger to a Western audience.

THE EAST GREETS THE WEST.

By D. Derbyshire, Brockville.

I would like to congratulate you, Mr. Chairman, upon the very able address that you have just delivered, and to thank you for the recommedation you have made in it. I know that you have devoted yourself to the interests of dairying in Western Ontario, and to the building up of this great national industry in connection with the work for the last eight years. I know that you have been unselfish, and that your heart is in the business, and you feel that the promotion of the great dairy industry of our country is something that is of national importance. I am sure that no one could have listened to this very thoughtful address without realizing that the suggestions that have been made are of the utmost importance, the securing of better factories, of a purer milk and of better men to work in the factories, men who have been educated in one of our Dairy Schools, and that these factories should be made of more permanent character. There is no business in Canada that shows greater advance than has been made in our dairy products. You have shown in this address the great advancement that has been made in the last few years, and that the past year has been the banner one. We have made in this country $28,000,000 worth of cheese. That is $7,000,000 more than we made in 1902, which was supposed to be the best year in the history of Canada, and we have made $7,000,000 worth of butter and $16,000,000 worth of bacon, which means that we have made $51,000,000 of money during 1903 in place of $45,000,000 in 1902, and that means that $6,000,000 more has been put into the hands of the farmers of this country last year than the year before, which gives additional buying power to the people. I must also congratulate you on the high standard in which you have placed Western Ontario in connection with this product. Canada now stands first for cheese in the British market, and we sent more cheese into the British market than any other country in the world.

I agree with you most fully as to your remarks in connection with the St. Louis Exhibition. What have we to gain by exhibiting there? If we took all the prizes, what good would it do us? We could not sell them a pound of cheese or a pound of butter or a pound of bacon. Providing we had the best product, as we know we have, they would exclude us from the country, and it is our business to build up our own Canadian country and make it productive and make the nations of the earth feel the power of the people we have in this Dominion. (Applause.) Our Dairy Schools and Agricultural Colleges have made the name of Canada famous throughout the world, and I tell you there is a great future before us. It is not a matter of price with the English people, it is a matter of product.

I am delighted that you referred to the good work of the Hon. John Dryden. He has been our right bower in connection with the improvement we have tried to bring about, and he is always endeavoring to help us in securing additional money we require in carrying on the work. For the year 1904 we have got to have more money; our instructors must get to the farm houses; they have got to come in touch with the men who are producing and handling this milk, and they must influence them to have better stables, better cows, and to pay more attention to the care of this milk, and to see that it gets to the factory in larger quantities and finer quality. These instructors are like the missionaries who are sent out to preach the Gospel, and I say it is of the utmost importance that we should have an additional grant in order that we may be able to send out more of them. You referred to the work of the Hon. Sidney Fisher, Minister of Agriculture for the Dominion. He has given us cold storage from the factories to the Mother Land, the refrigerator cars from the factories to Montreal, and cold storage in the steamships from Montreal to Liverpool; and all we want him to do now is to see that we have additional cars, so that cheese will be shipped in a perfect condition, and to see that they will arrive on the market in perfect condition. Then we will be able to place our product on the market in such a shape that nobody will be able to successfully compete with us.

I am satisfied from the work that is going on at the present time that the people of this country are going to stand up and see that they are furnished with the cheese they require, and we will place ourselves another step in advance. If we only had the men who produce the milk here to-day—the men from the farm—so that we could sound it in their ears that we want a better product, and if we had the men who run the factories so that we could show them the necessity of working together—show them the necessity of taking an interest in their work, and if we could get the farmers so that they would not be going from one factory to another because they get their milk drawn cheaper, or something of that kind, I think it would be a great deal better. Stand by your own factory, and if this factory is not just as good as you think it should be, see that it is made right. The instructor that is sent to the factory is your guarantee that you are being well served. He is not sent there to have people fined; we do not want to fine anybody; they are sent there to see that the maker is doing proper work, and if things are not right he will report to you, so that you can place a competent man in charge of the factory.

I want again to congratulate your President on the estimable work he has done in connection with this Association for so many years. Possibly it is the best thing to change your President from year to year, as you seem to have so many able men in the work. In the East it seems almost impossible to get anybody to take office. We have had difficulty down there in getting any person to take the position of President, because there is so much work in connection with the business, and he has got to be done without money or price. I have been President for a great many years, and sometimes I feel ashamed that I have been President for so long, but I have given my services free, and I have done the very best I could to build

up the dairy industry in Eastern Ontario. (Applause.) I am delighted to know we are making advance, and doing better service than we have ever done before, and I believe that 1904 will be the most prosperous year, not only in the production of milk, but also in the quality of the milk purchased. If we could only put up this product so that it would direct the attention of the nations of the earth, with our unlimited possibilities and our great resources, we would advance by leaps and bounds. I predict that we are going to make $60,000,000 worth of dairy products during this present year. I prophesied last year that we would make $50,000,000 in place of $45,000,000, and I say to-day we are going to make $60,000,000 this next year, and that means that we must walk right to the front. We have the people with the ability and intelligence to produce the finest goods on the earth to-day. The President's address was a manly one, and I hope it will be taken to the hearts of all the people.

The Chairman: Every word of what Mr. Derbyshire has said has been valuable to us and to everybody in connection with the dairy industry, and I hope you will take it to heart, and try to do your level best for the future.

DIRECTORS' REPORT.

Mr. J. N. Paget read the Report of the Directors. Your Directors for the year 1903 beg to report as follows:

The Season. We have again to congratulate the factorymen, makers and patrons on the success of the operations for the year 1903. Owing to the favorable weather conditions, the output has been large, and has met with a good demand at high prices through nearly the whole of the season, especially for cheese. Towards the end of the season prices were lower, but still such as to return a good profit to the producer.

Cheese Markets. Your Directors would strongly urge salesmen of factories to market their produce at regular stated periods, weekly or fortnightly. It has been found that those factories average the best prices during the season that follow this system. It is contended that the salesman who does not sell his cheese as soon as ready for the market, at current market rates, becomes a speculator, and very often to the detriment of the patrons.

Membership. The number of members enrolled was 326, as against 246 last year.

Annual Reports. Unbound copies of the annual report were sent to all members in March, and bound copies, including the reports of both the Eastern and Western Associations, together with the reports of the three Ontario Dairy Schools, viz., Guelph, Strathroy, and Kingston, were sent out in May. There were several notifications received from members that they had not received their bound copies, but on investigation it was generally found that the cause of non-delivery arose from the member having changed his address, or some other party of the same or similar name having received it. Members, in giving their addresses to the Committee, are asked to be careful to see that the addresses are quite correct, and also to notify the Secretary should there be any change in the address. We have a few of these bound copies left, and should be glad to dispose of them to any dairymen at $1 each. They make a valuable addition to a dairyman's library.

Speakers for Anual Meetings. Your Board arranged for several members of the Board and other qualified authorities to address annual meetings of factories, when applications were made for their services. A number of meetings were addressed in this way, with great satisfaction to patrons and factory managers. It is recommended that similar arrangements be made again for the annual meetings

that will take place during the present winter. The benefit of these meetings was especially felt when groups were being organized during the fall by the Chief Instructor. The factorymen and patrons, being better informed, never manifested greater interest and more ready appreciation of the benefits to be derived from the new system of instruction.

Method of Instruction. In 1902 a special group of factories was formed for instruction purposes by the Department of Agriculture, and placed under the charge of Mr. Geo. H. Barr. The results were found so encouraging that it was decided to endeavor to form the whole territory into groups of from twenty to twenty-five factories each, and place each group in the charge of a competent instructor. To accomplish this, a special committee of your Board was appointed to deal with the matter. This committee waited upon the Minister of Agriculture to discuss ways and means of putting this system into execution. On the Minister undertaking to recommend that sufficient funds be granted by the Legislature for the purpose, a circular of inquiry was sent out to all the cheese and butter factories asking their co-operation. Then favorable replies were received from sufficient number to enable the committee to act, and four groups of cheese factories and two of creameries were organized. These two groups of creameries included practically all that were in operation during the summer. The four groups of cheese factories were the Simcoe group, Brantford-Dunnville group, Ingersoll group, and the Stratford-Lambton group. Provision was also made for any factories that might desire the services of the instructors of the Association.

Much evidence has come to hand from buyers and other sources, which would clearly demonstrate the benefits that have been derived from this system during the past season, and the Directors feel confident in unhesitatingly expressing themselves as believing that the system that we have now on foot is the best system of instruction yet adopted in Canada, and that the money so expended has yielded splendid results.

Special Courses for Instruction. All the instructors attended at Guelph in March for several weeks to receive special instruction for their work.

Prizes for Improvement at Cheese Factories. Mr. Henderson, General Manager of the Canadian Salt Co., intimated to the Board at the time of the last convention that his company has proposed to offer about $150 as prizes for improvement at cheese factories. Later in the season a conference was held with Mr. Henderson, when the offer was increased to $200, and prizes offered as set forth in the following copy of a circular letter issued in July:

"Through the kindness of the Canadian Salt Co., Limited, Windsor, we are enabled to offer to cheesemakers $200 in cash prizes for general improvement, sanitary conditions, and cleanliness, during the season of 1903, at cheese factories from which applications have been received, on or before July 25th, for the services of the instructors of the Association.

"The money will be divided as follows: In each group, 1st price, $25; 2nd prize, $15.

"The groups are as under:

"1. Simcoe group, Mr. W. G. Medd, instructor.

"2. Brantford-Dunnville group, Mr. J. R. Burgess, instructor.

"3. Ingersoll group, Mr. S. P. Brown, instructor.

"4. Stratford-Lambton group, Mr. Alex. McKay, instructor.

"5. All factories not included in above groups, Mr. Frank Herns, instructor.

"The awards will be announced and the prizes presented at the annual meeting of the Association in January next."

The Chief Instructor, with the instructors in their respective districts, and also one member of the Board for each district, visited the factories with a view to ascertaining who were entitled to the prizes. The report of the committee will be submitted to you at the Wednesday evening session, when the prizes will also be awarded and presented.

Legislation. An Act was passed by the Dominion Parliament to prevent adulteration in dairy products, and to provide for the proper marking of creamery butter. The legislation regarding the marking of creamery butter has not received the unanimous approval of the manufacturers, a number protesting against any other than butter made at co-operative creameries being branded as creamery butter.

Instruction for 1904. At a meeting of the Board in September, it was decided that, as the Board had been very much handicapped in previous years in not being able to prepare for the instruction of the ensuing year until after the convention and the appointment of the new Board, an effort should be made to make arrangements forthwith to continue and develop the system that had been found so beneficial.

A special committee of the Board was appointed to consider the matter with power to act. After full consideration, the committee waited on the Minister of Agriculture, and, after carefully discussing the matter with the Minister, the committee felt justified in proceeding A report of what has been done in this regard will be made by the Chief Inspector.

The special reasons that influenced your Board in coming to this decision were, first, that the men best qualified to act as Instructors were not available in the spring, and it was necessary to look out for them before they made their engagements for the ensuing year ; second, that the method had been found so satisfactory that there was no doubt that it should be continued ; and third, that the Board felt that they would receive the hearty endorsation of the members of the Association if they undertook this responsibility on behalf of the new Board.

Better Factories. It has been suggested that owners of factories should be compelled to take out a license, and that such licenses should not be issued unless the factories were in proper condition, in all respects, for the making of cheese and butter. As it is apparent to those who are acquainted with the conditions of our cheese factories and creameries that sufficient progress has not been made during the past few seasons in improvement of buildings and their surroundings to accomplish the production of the very finest cheese and butter, it is, therefore, felt that some means should be adopted to more quickly accomplish this improvement. Your Board would, therefore, recommend that a resolution be passed by this Association recommending the licensing of all cheese and butter factories.

Winter Dairy Exhibition. The Board has again offered cash prizes for a Winter Dairy Exhibition, the prizes being the same as last year, with the addition of a section for butter made in October. It is gratifying to report that the entries have been good, those for cheese being in excess of last year, although butter is hardly so good, the number of entries being as follows.

28 September Cheese, White.
29 September Cheese, Colored.
32 October Cheese, White.
32 October Cheese, Colored.
20 Creamery Butter, Boxes.
20 Creamery Butter, Prints.
10 Creamery Butter, October make, Boxes.

The reason for offering prizes for October butter is that a considerable time must elapse before butter made in the summer can be delivered in Great Britain, and it was thought well to make a test in this way. Th report of the judges on this October butter will be looked forward to by buttermakers with considerable interest.

On motion of J. N. Paget, seconded by Robt. Johnston, the report was received and adopted.

FINANCIAL STATEMENT.

The following financial statement was read by the Secretary :

Receipts.		Expenditure.		
To cash on hand from previous year	$1,459.18	By grants to other societies		$ 200.00
To membership fees	325.00	By prizes Winter Dairy Exhibition		455.00
To Legislative grant	4,000.00	By expenses Annual Convention		238.36
To factory fees	966.00	By officers' salaries		360.00
To proceeds of exhibits sold	869.76	By directors' expenses		443.35
To instructors' supplies sold	2.50	By postage, telegrams, express, etc.		96.91
To outstandings, 1902	15.00	By printing and stationery, including Annual Reports		129.32
		By instructors' salaries, including expenses:		
		W. G. Medd	$800.00	
		J. R. Burgess	800.00	
		S. P. Brown	800.00	
		Alex. McKay	800.00	
		Frank Herns	800.00	
				$4,000.00
		By instructors' supplies and other expenses		187.39
		By reporting		78.65
		By Auditors		8.00
		By office charges		23.34
		By liabilities for 1902		28.00
		By travelling expenses		22.85
		By exchange		1.75
		By exhibits sold		898.05
	$7,637.44			$7,170.97
		Balance		$ 466.47

Moved by Harold Eagle, seconded by I. W. Steinhoff, that the financial statement as now read be received and adopted. Carried.

Mr. Steinhoff : When we were undertaking the new work this year it became necessary to practice a great deal of economy or we might have had a deficit instead of a surplus, and it is a great pleasure to know we have a surplus after extending the field of operations as we have. It just goes to show that the Secretary improves as he goes along, and he is getting better all the time. I do not think the work was ever so well done as it was this year. I have great pleasure in seconding the adoption of this report.

CHEMICAL NOTES FOR 1903.

By W. P. Gamble, O.A.C., Guelph.

The topic assigned me is "Chemical Notes for 1903." I shall, therefore, give you a brief review of that part of the work of the year which I consider of most importance to the dairymen. In reviewing this work, permit me first to mention a series of experiments conducted during the past season by Prof. MacKay, of Ames, Iowa. In Iowa, as in Ontario, there are many cream-gathering creameries, and the difficulties experienced in securing sweet cream are by no means confined to our own Province. One form of the difficulties which buttermakers meet with arises mainly from the fact that part of the milk sugar has been changed into lactic acid. This development of acid will continue until approximately 1.2 per cent. is indicated by the alkaline test. When this percentage acidity is reached, the lactic acid ferment is rendered inert. But the presence of lactic acid does not prevent the development of other organisms which produce putrefaction, off flavors, etc. To get rid of the excess of acid, Prof.

MacKay treated the sour cream delivered at his dairy with bicarbonate of soda. After this treatment the cream was pasteurized. It is claimed for this operation that some (not all) of the bad flavors are expelled. After the cream had been thoroughly pasteurized, a pure culture was added for the purpose of developing acid. Finally the cream was churned. In speaking with Prof. MacKay on the result of this series of experiments, he said that butter could be made from very poor cream, which, having been subjected to the treatment I have described, would score five points higher than butter made from a similar cream under ordinary conditions.

A word or two on chemical preservatives may be of interest to this audience, in view of the fact that a considerable number are now being extensively advertised. As is well known preservatives, such as boracic acid, borax, etc., possess antiseptic properties. By virtue of this property, any preservative operates by destroying the life or suspending the activity of those organisms which cause decay, fermentation or putrefaction. Antiseptics are, therefore, for the most part poisons. But in certain dilution they may counteract or kill the lower, weak organisms of fermentation and putrefaction without apparent injury to higher animals. The power of different persons to overcome the action of common antiseptics, and to carry on the digestive processes under their influence, is very various, some suffering no inconvenience from doses which hinder digestion or disturb the health of others. The most eminent physiologists and physicians are, however, fairly well agreed that whether an antiseptic shall act as a harmless preservative, or as an unhealthful or fatal poison in any case depends upon the quantity and frequency of the dose. Whatever may be the effect of preservatives upon the human system, the fact remains that our export trade in butter at the present time requires that antiseptics be used in order to keep the finished product in good condition until it reaches the consumer. It is, therefore, desirable that experimental work be done in order to determine what chemical preservative is best for the purpose. In this connection I may say that Prof. Dean intends to carry on experiments along this line in order to furnish buttermakers with the desired information.

During the past season I have made a chemical examination of a number of preservatives, and in every case have found that they contain varying quantities of borax. One preservative examined contained 30.36 per cent. of salt and boracic acid, and borax equivalent to 67.62 per cent. of boracic acid. Five other samples of preservatives examined showed varying quantities of borax and salt. I may here again explain that I secured several samples of quite pure borax, and found that the equivalent of boracic acid in these varied quite widely. This variation is due mainly to the fact that there are two varieties of borax in commerce that differ in the form of their crystals and in the proportion of their crystallization (one of the octahedral or penthydrated borax contains approximately 30 per cent. of water). The second variety of borax is prismatic. When freshly made this variety contains 40.0 per cent. of water. It loses water when exposed to air, therefore, the composition may vary considerably. Borax costs from 15 to 25 cents per pound.

From the results of our chemical examination we conclude that butter preservatives now on the market depend for their antiseptic effects on salt, formaldehyde, borax, and boracic acid.

Before dropping this point I may state that practical experiments, together with a chemical examination of all the preservatives on the market, are necessary in order to establish their relative value as well as economy in use.

Conditions Affecting Chemical Changes in Cheese Ripening.

The question of the chemical changes which take place in cheese is a very important one, and one which, for the past three years, has received considerable attention from the Chemical Department of the Ontario Agricultural College. The

work of investigating the conditions which affect these changes was commenced by Prof. Harcourt in 1900, and has been carried on continuously through a period of two and one-half years.

In our first series of experiments we endeavored to discover the influence which "time" has upon the ripening process. From data obtained in this series of experiments, we are lead to believe that the amount of soluble nitrogenous compounds increase as cheese age. The rate of the formation of these compounds is more rapid in the early stage of ripening, about 5-8 of the total soluble nitrogenous compounds being formed during the first three months, and over 90 per cent. in the first eleven months of a two-years' period of study.

The effect of different temperatures on cheese ripening next engaged our attention. Prof. Dean and his able staff rendered us every assistance in this work, as in all other lines of investigation undertaken in relation to dairy products. Several series of cheese were made in duplicate. One of each pair, marked A, was placed at once in cold storage. The second, "E." was placed in the ordinary curing room. These cheese were analyzed every month, and the data obtained indicate that soluble nitrogenous compounds increase in cheese ripening quite closely in proportion to increase of temperature. The cheese in the ordinary curing room at two weeks old showed a much higher percentage of soluble nitrogenous compounds than those in cold storage. At a month old the rate of ripening was practically the same in both cases, and at the end of six weeks the cheese in cold storage showed a slight increase in the percentage rate of ripening over the cheese cured at ordinary temperatures. The amide and ammonia compounds, however, were more abundantly formed, and they steadily accumulated in the cheese at higer temperatures.

The influence which salt exerts on the development of soluble nitrogeneous substances in cheese was next studied. This part of the investigation proved very interesting, as our results go to show that in cheese containing a high percentage of salt (over 3 per cent.), the soluble nitrogeneous compounds form more slowly than in cheese containing less salt. This would appear to be due, in part, to the direct action of salt in retarding the activity of one or more of the ripening agents, and, in part, to the tendency of salt to reduce the moisture content of the cheese.

The moisture content affects, in a marked degree, the percentage of soluble nitrogen in cheese. Co-operating with the Dairy Department, we studied each experiment carefully, and found that after a period of one month the cheese, with a high moisture content showed a correspondingly high percentage of soluble nitrogenous substance. I may state that in the manufacture of the cheese used in this experiment, great pains were taken in order to incorporate as much moisture as possible in one cheese, and to expel the excess of moisture from the second. Prof. Dean made the determinations of moisture and salt. The soluble nitrogen was determined in the chemical laboratory. The first analysis was made immediately after the cheese was removed from the hoops, and the second when the cheese was three weeeks old. Other analyses were made monthly. The results obtained from this series of experiments show that cheese containing more moisture, other conditions being uniform, generally contain larger amounts of soluble nitrogenous substance, especially after the early stages of ripening. There are two reasons why moisture may affect the ripening process in cheese. First, moisture in itself favors the activity of ripening ferments, and second, the presence of increased amounts of moisture serves to dilute the fermentation products that accumulate.

In all the experiments conducted we made very careful determination of the various forms of nitrogen in the cheese, namely, paracasein, caseoses, peptones, amides, and ammonia. The data secured shows that the first three of these nitrogenous compounds usually vary within narrow limits, and do not as a rule accumulate in cheese in increasing quantities, but after a time decrease. On the other hand, amides and ammonia are found to accumulate continuously during the normal ripening of the

cheese. The cold-cured cheese always showed an increase of paranuclein, caseoses, and peptones. While in the cheese cured at high temperatures we always found a high percentage of amides and ammonia. It is not improbable that the off flavors, sometimes noticed in cheese cured at high temperatures, may be to some extent due to the accumulation of these end products (amides and ammonia).

There is one fact mentioned in the early part of this discussion which I should like to repeat, namely: That over 90 per cent. of the soluble nitrogenous substances is formed within the first eleven months. This would appear to indicate that the products of proteolysis in some way affect the chemical activity of the micro-organisms and ferments which bring about the changes. In other words, the accumulation of soluble nitrogenous compounds in cheese appears to determine the activity of the proteolytic agents, and this in a measure explains the reason why cheeses ripen less rapidly after the first period. We all know that when milk casein and its salts or paracasein and its salts are acted upon by dilute acids or alkalies, under certain conditions, or by enzymes or micro-organisms, the proteid bodies are split up, and thus give rise to a variety of cleavage products already mentioned.

In closing the discussion on this line of our work, permit me to point out a few practical considerations which may be gathered therefrom: (1) That high temperatures in ripening promote rapid development of soluble nitrogenous compounds, some of which are undesirable. (2) That cheese wiith a higher moisture content ripen more rapidly, but rapid ripening is not conducive to the production of cheese of best quality. (3) That the ordinary amount of salt used in the manufacture of cheese does not materially affect the ripening process, but a higher percentage of salt retards the development of soluble nitrogenous compounds. (4) The condition of the manufacture of cheese and of ripening, determine the rapidity and extent to which chemical changes take place in nitrogenous compounds during ripening. Lastly: That cheese made and handled so as to ripen slowly is of a higher commercial value.

A Member: When you speak of high temperature and low temperature, what do you mean by that?

Mr. Gamble: We consider under 40 degrees a low temperature, and over 60 or 65 degrees a high temperature. The temperature in the ordinary curing room will often run over 60 degrees in summer time.

Mr. Derbyshire: What do you think is the proper temperature at which cheese should be cured?

Mr. Gamble: I would not state any definite temperature, but at a temperature below 40 degrees the cheese will cure readily, and the most valuable nitrogenous matter will form at that temperature, and the undesirable bacteria will not develop.

Mr Derbyshire: It is considered with us that a temperature of 55 degrees is the proper temperature for the production of the finest quality and the longest-keeping cheese. What do you think of that?

Mr. Gamble: It is possible that you can obtain the best quality of cheese at that temperature, but I do not think cheese cured at that temperature will be any better in quality than that which is cured at a temperature of 40 degrees, for the reason that the valuable nitrogenous products will form at this low temperature.

Mr. Steinhoff: It seems to be a question of expediency. It will take longer to cure cheese at 40 degrees or below that than if it was cured at 55 degrees, and I think when we consider the conditions as they are in Canada, and the desire to market the cheese within a certain length of time, that 55 degrees has been found most satisfactory. How long would you think it was necessary to hold cheese at 40 or below before it would be marketable?

Mr. Gamble: We found that all the nitrogenous compounds were formed in eleven months if the cheese were kept at a temperature of 40 degrees. After eleven months there is very little if any development of the soluble nitrogen in the cheese, if kept at a temperature of 40 degrees.

Mr. Derbyshire : What would you think of moving the cheese within fifteen days from the factory, and selling them, and starting them for the British market on their way rejoicing ?

Mr. Gamble : I presume, so long as the British market requires them, and the price will warrant, the cheese will be shipped.

Mr. Derbyshire : What temperature would you have them if we were to sell them in fifteen days after being made ?

Mr. Gamble : That will depend upon the conditions. If you wish them solid in fifteen days, then I presume the temperature of 55 degrees would be a better temperature than that of 40, for the reason that there is no question about it that cheese will cure faster at 55 degrees than at 40 degrees in the early stages, but not after the first month.

Mr. Derbyshire : Did you ever have any experience of putting cheese for the first three or four days in a warm temperature, and then dropping them from there into the curing room ?

Mr. Gamble : Yes, we have done it. In a warm temperature the cheese begins to ripen at once, and then when they are put into cold storage the rate of ripening is dropped back a little for a short time, and then they go on again.

Mr. Steinhoff : Regarding preservatives in butter, I understand the object is to prevent objectionable flavors from rising ?

Mr. Gamble : Yes, that is the object.

Mr. Steinhoff : Has it any effect upon the flavors of the butter ; that is, does it to some extent destroy the quick aroma that the butter would have ?

Mr. Gamble : As I have said, we have not performed any experiments along this line, but I cannot see how such preservatives as borax and boracic acid could affect aroma ; they have very little taste themselves, and the action of the preservative is simply to destroy the lower organisms and organisms which bring about fermentative putrefaction. It may be that boracic acid may destroy the organisms that produce the aroma in the butter, and we hope to be able to give you that information in the near future.

Mr. Derbyshire : Supposing you had milk furnished from a select number of cows that had been fed for the special purpose of making the best milk, and supposing it had been kept at a low temperature and perfectly clean, and if this milk was handed to the buttermaker, do you think you would require any preservatives in order to produce the finest quality of goods ?

Mr. Gamble : No, I do not think so.

Mr. Derbyshire : Do you not think that it would be better to have perfect milk, and then we could make that solid body and waxy nice texture that makes the heart of the man who eats it rejoice ?

Mr. Gamble : Yes, I think so.

Mr. Derbyshire : Then is it not your business to ask these farmers to produce that kind of milk, and keep the blessed preservatives away from them altogether ?

Mr. Gamble : We never usually advocate the use of preservatives. At the same time we must realize that during the last season large quantities of preservatives have been used, and I think the question is, can we alter the conditions we have, or must we take the conditions as we find them and make the best of them ?

Mr. Derbyshire : Do you not think it is better to get the conditions right ?

Mr. Gamble : Yes ; but butter made from the best quality of milk will after a time go off flavor. It is a perishable product, and a preservative will kill the organisms which are present in the milk.

Mr. Steinhoff : In your experiments did you find any preservatives that should not be used ?

Mr. Gamble : No ; but in some of the preservatives there is a considerable quantity of common salt, and it is just a question as to whether these preservatives possess

other qualities which enhance their value, or would it be better for the dairymen to procure boracic acid or borax simply.

Mr. Derbyshire : There is no doubt half the cream is spoilt. This treatment is all right, but I maintain that we should try and get the cream without spoiling it. What we should try to do is to get a better product, and if we can do that we can make the finest goods that are made in the world.

A Member : I would like to know if you can feed turnips to cows at any time of the day, so that they will not be injurious. Some people say that if cows are fed turnips right after milking in the morning it is all right.

Mr. Gamble : I do not think there is any time you can feed them.

Mr. Derbyshire : That is it just exactly. Do not put a blessed turnip within 100 rods of a dairy cow. (Applause.) After the milk has been drawn from a cow in the morning, it is possible to feed a limited quantity of turnips, but when these men once get a chance to feed turnips to a cow they stuff them full.

A Member : How about ensilage ?

Mr Derbyshire : If the ensilage is proper ensilage it will make a better quality of milk, but if you have ensilage cut from immature corn, and feed the cow entirely on ensilage, if everything around the place is ensilage, and everything littered with ensilage, and you feed the hired girl ensilage, you will ruin the whole business. You should give the cow 40 pounds of ensilage a day, and also hay and grain, and it is the best food you can give the cows ; it lowers the cost of production.

A Member : What about potatoes ?

Mr. Derbyshire : I would feed them to the pig.

A Member : What about sugar beets ?

Mr. Derbyshire : It is all right to feed them, but they are too expensive. We want to reduce the cost of the raw material, you can do that better by feeding ensilage than you can be feeding sugar beets. Every man should have a silo for dry weather. Everybody knows that we are sure to have dry weather some time in the year, and that is time to open your summer silo and feed it to the cows so as to keep up the flow of milk.

A Member : Would it make any difference when this ensilage is fed ?

Mr. Derbyshire : Feed it to them in the morning and at night, too, and give them soe clover hay at nights as well. Some people down our way do not want to eat any breakfast in the morning, but I believe the first thing you want to do in the morning is to eat, and I believe the cow is the same. Some people say the horse does not want any water in the morning, but I would give my horse a pail of water the first thing in the morning, and clean out his neck and get him ready for business.

A Member : At what stage of buttermaking do you add the preservative ?

Mr. Gamble : In the salt ; the preservative is usually mixed with the salt.

Mrs. Adda F. Howie : I would like to tell you how greatly honored I feel in being present at this noted meeting. I have been listening to these talks about the care of the product, how necessary it is to put in foreign matter in order to secure a good product of cheese and butter, but so far not a word has been said about the dairymen's little working partner, the cow that makes this product. Now, I believe, if the Lord intended that we should put any foreign matter into the milk, He would have given that privilege to the cow, and not to us. (Applause.) No doubt many of you gentlemen are surprised to hear a lady talking on a subject that heretofore the men have thought belonged wholly to themselves, but if you will stop to think just a moment you will remember that the calf that mother and the girls raised between them made the best cow. That was not because mother and the girls were wiser, but because there is a bond of sympathy between the woman and the bovine mother, and that bond the bond of motherhood. Therefore, I sincerely believe that a woman can better understand the requirements of a cow barn than a man. Many men will pay large sums for valuable cows. They will put them in the barn and say, "We have pure bred

stock," and they think they are on the royal road to success ; but I want to tell you there is something more than breed to go into your barn, and that is the care that these animals require to produce a wholesome product.

So far back as the year 1737 a noted French writer was so impressed by the beauty and meritorious qualities of a breed of cattle to be found on a very small island in the English Channel, near the coast of France, that he estimated them worthy of special mention, and we are told by this historian that centuries of gentle care, under the management of woman, had developed this noble breed. A little further on the writer says that the time of calving the cows are regaled with toast and cider, to which has been added a little powdered ginger. Surely that is a great insight into the methods employed by these managers years ago ; and yet one may read between the lines the secret of success of this breed of cattl, by what was given them to stimulate them, and thereby tend to ward off that to be feared trouble, "milk fever." More than one hundred years have passed away since that was noted in a world's history, and yet down the line to the present day all the gentle management in this refined breed of cattle will be noted in their production. Unless we may bring gentle treatment into our barns we can never hope to get the full value of our product, because every time a cow is struck, frightened, or in any way ill-treated it will not only decrease the flow of milk, but will also injure the quality. It will decrease the butter fat from ½ to 1 per cent. (Applause.)

The Chairman : I am sure you have all been delighted at the few remarks of Mrs. Howie. Gentleness and care is something that applies to all lines of business, as well as the dairy business.

INSTRUCTION IN CHEESE FACTORIES IN WESTERN ONTARIO.

By Geo. H. Barr, Chief Instructor, Guelph.

The system of instruction carried on by the Ontario Department of Agriculture during 1902 in the two groups of cheese factories in Eastern and Western Ontario proved so successful that the Directors of the Western Ontario Dairymen's Association decided to adopt the same system during the season of 1903.

The Directors of both the Eastern and Western Dairymen's Associations met in Toronto on February 24th, 1903, to discuss with the Hon. John Dryden, Minister of Agriculture for Ontario, the best methods to pursue regarding the work of instruction in cheese factories and creameries.

It was the unanimous opinion of those present that forming the factories into groups, with an Instructor over from twenty to twenty-five factories, and a Chief Instructor to superintend the work, was advisable. The system was adopted, and at the request of the Directors of the Western Dairymen's Association, the Department of Agriculture appointed me as Chief Instructor for Western Ontario. The Directors of the Association appointed a committee on instruction, to co-operate with me in arranging and carrying on the work, as follows :—Robert Johnston, J. N. Paget, W. K. MacLeod, Thos. Ballantyne, and the President, James Connolly.

Four groups were formed in the following districts : Ingersoll, Simcoe, Brantford and Dunnville, Stratford and Lambton. Each factory in the group agreed to pay a fee of $10 for the Instructor's services. Besides these four groups, arrangement was made to supply factories outside with instruction as applied for, at the rate of $3 for one visit, and $2 per visit if two or more visits were made. Before the Instructors commenced work they all spent ten days at the Guelph Dairy School, taking the special work to better fit them for their work in the factories assigned them. The following factories were in the Ingersoll group, with S. P. Brown as Instructor : Mapleton, Gladstone, Belmont, Westminster, Harrietsville, Lyons, Northwood, Springfield, Burnside, Crampton, The Gore, Verschoyle, Culloden, Brownsville, Bayham and Malahide,

North Bayham, Malahide, Dereham Centre, Maple Leaf, North Oxford, Salford, Avon. Each factory was visited six times ; total 132 visits ; 41 patrons were visited. Twelve meetings were held, with an attendance of from 5 to 50.

In this group $6,455 was spent on buildings and equipment during the year. There is perhaps more cheese made in this section than in any section of the same size in Canada. The quality of the cheese is not as fine as we find in the northern districts. The flavor is apt to be not clean, due to a great extent to the whey being returned in the cans, and the cans becoming rusty and hard to keep clean. The texture is inclined to be harsh--not that smooth silky character which we like to see. This is due to quite an extent to over-ripe milk, or running the curds too fast, and not getting the moisture properly expelled.

The finish of the cheese, I am pleased to say, improved wonderfully during the season, and there was a decided improvement in the texture. If the makers will stand for sweet cool milk delivered in bright clean cans, as they agreed to do at the meeting at Avon, where the following resolution was passed, there will be decidedly better cheese next year. It was there moved by John Brodie, seconded by A. Herricks : "That believing it to be in the best interests of dairying, and that it will be a benefit to the patrons of cheese factories, we, the cheesemakers of the Ingersoll District, agree not to accept milk from any patron whose milk has been rejected by any other cheesemaker in the district for being of inferior quality or for defects in his milk cans." That resolution was passed by a unanimous standing vote.

This, to my mind, is one of the most advanced steps cheesemakers have ever taken to improve the quality of our cheese, and the makers in the Ingersoll group deserve great credit for their courage in being the first group of cheesemakers in Canada to pass such a resolution. May they all stand by it, and we shall see the Ingersoll cheese second to none.

Simcoe Group, W. G. Medd, Instructor : Excelsior, Lynn Valley, Vittoria, Walsh, St. Williams, Clear Creek, Erie View, Nixon, Rockford, Tyrrell, Villa Nova, Waterford, Boston, Summerville, Courtland, Springford, Vanessa, New England, Kelvin, Homewood, Jarvis, Black Creek.

These factories were all visited six times except one, which received five visits, making a total of 131 visits. Twenty-eight patrons were visited by the Instructor to give assistance and information in producing a better quality of milk. A large number of cards were sent to patrons giving useful information regarding the proper care of milk. Seven patrons' meetings were held, with an attendance of from 10 to 60.

A pleasant feature in the work of instruction in this section is the interest and enthusiasm which a large number of the factorymen are showing in their work by improving their buildings and surroundings, and encouraging the patrons to send more and better milk.

In this group nearly $12,000 was spent during the year in improvements in buildings and equipment. A few of the factories are in a first-class sanitary condition, and kept clean and tidy, but there is great room for improvement in the larger number of them in this respect. The quality of the cheese in this group is inclined to be rough in texture, not meaty enough, and not neatly finished in many cases. A decided improvement was noticed in all these respects during the latter part of the season. Better milk and more careful cooking, with less moisture in the curds at dipping, will improve the texture ; careful bandaging and turning the cheese in the hoop in the morning will improve the finish.

There are four or five factories in this district which did not enter the group last year, which we hope will come in next season.

Brantford-Dunnville Group, J. R. Burgess, Instructor : The factories are : North Brant, St. George, Sheffield, Lynden, Renforth, Woodburn, South Grimsby, Bismarck, Forks' Road, South Cayuga, Attercliffe, Canboro, Caistorville, York, Caledonia, Cainsville, Mt Pleasant, Selkirk, Welland, and Humberstone. Two of these factories were

visited twice, one seven times, and the balance six times; total, 101 visits. Forty-one patrons were visited to assist them to produce better milk; besides many cards were sent out. Four patrons' meetings were held, with an attendance of from 6 to 70.

About $1,200 was spent for improvements in this group. The majority of the factories in this group are small. Some of them are kept nice and clean, with tidy surroundings, but quite a number of them are in poor sanitary conditions, owing to poor floors and drainage, and should be repaired before another year, which I believe will be done. The quality of the cheese is uneven, some of the factories making for local trade.

The texture of the cheese should be better, as too many are short in texture, and lack that smooth meatiness which is desired. The finish of some of the cheese in this group is very bad, and I would advise factory men to see to it that this is improved at once, as nothing will hurt a section more than to have a reputation for untidy looking cheese. This is entirely the cheesemakers' fault. A very decided improvement was made in the appearance of a number of the factories during the season, whitewash and paint being used freely, giving things a neater and brighter appearance. There was considerable improvement in the finish of the cheese in some of the factories. Dairying is on the increase in this section, and prospects are encouraging for more and better cheese.

Stratford-Lambton Group, Alex. McKay, Instructor. Factories are: Avondale, Classic, Ellice and Logan, Willow Grove, Sebringville, Black Creek, Fullarton, Blanshard, Avonbank, Ridge Tree, Maple Grove, Galabank, Uttoxeter, Watford Union, Thompson's, Kerwood, Keyser, Forest. Ten were visited six times, seven seven times, and one twice. Total, 111 visits. Forty-three patrons were visited. Seven patrons' meetings were held, with an attendance of from 15 to 45. The improvements in this group amount to $2,786. Several of the factories in this group are almost perfect as to cleanliness and tidiness, both inside and outside. The floors in a number of the factories are not good, and should be replaced before another year. The quality of the cheese in the majority of the factories is good, some of them fancy. There are still too many bad flavors in the cheese, due to tainted and gassy milk being delivered by the patrons. This group is not convenient for working, and should be re-arranged.

The factories outside of these groups, which were visited by Mr. Herns and myself, are as follows: West Zorra, Donegal, Burgessville, Yarmouth Centre, Newry, Brooksdale, Chatham Gore, Lossee, New Lawson, North Dorchester, Lakeview, Appin, Proof Line, Spring Creek, Carthage, Mt. Carmel, Delaware, West Nissouri, Napier, East and West Oxford, Diamond, Atwood, Inwood, New Durham, Red Star, Tiverton, Dorchester Station, Devizes, Dorchester Branch, Maitland, Huron. I visited myself, Soho, Bright, Hickson, Laurel, Cathcart, Fernhill, South Middleton. Total, 39.

These factories were visited according to the number of visits applied for, as in former years application was made for from one to five visits at each factory, making a total of 103 visits. Seven patrons' meetings were held, with an attendance of from 30 to 250. About $2,500 was spent on improvements on these factories.

These factories are scattered over a large section of country, and a great deal of time is lost in travelling, and the work cannot be done as well as where the factories are in groups. A decided improvement was noticed in the quality of the cheese as a result of the visit of the instructor in many cases.

During the season I visited nearly all the factories included in the groups, spending several days with each instructor, to see that they were all giving uniform instruction, and to assist them in their work. I also visited quite a number of factories outside of the groups, and attended 21 meetings. These meetings are not as well attended as they should be by patrons. I believe they are one of the best features in our work, and more of them should be held. At every meeting I was at, the greatest interest was taken by the patrons in the questions brought up, and the system of instruction being carried on was commended. I found the Simcoe district, where Mr. Paget gave an

address at the annual meeting last winter, the patrons were more familiar with our work, and more anxious to improve the quality of the milk than in other sections. Too much attention cannot be paid to having good live dairymen attend the annual meetings during the winter, and meet the patrons. During the season there were 121 factories visited for instruction purposes. Total visits, 589. Patrons' meetings, 37, with an attendance of 1,147. Patrons visited by the instructors, 153. Total expended on factories, $24,341.

Considerable fault was found during the summer months with the use of the acidimeter. In some instances the buyers were condemning it strongly, as the cause of open cheese.

There is no doubt the improper use of the acidimeter did cause mistakes, but when properly used it is no doubt a great help to the intelligent cheesemaker, and I would urge upon every cheesemaker to become acquainted with its use.

The instructors have not spent as much time among the patrons as I would like, but it is necessary that first the instructors and makers should be working along the same lines. This has been well worked out during the past season, and next season there will be more time to devote to the milk end of the business. I hope to see the makers more careful about the quality of the milk they receive next season. Let makers stand firm for clean, sweet, cool milk, and not take milk from any patron whose milk has been rejected by another maker, and we shall see a wonderful improvement in the quality of our cheese. I held meetings of the factory men and makers at Avon, Norwich, Simcoe, Dunnville, Woodstock, Listowel, and Strathroy, to discuss with them the work of instruction, and make arrangements for another season.

The making of cheese was also discussed at all these meetings. The system of instruction as carried on during 1903 was commended, and in the districts where the groups were it was the unanimous wish of those present that the same system be carried on next season. In the districts were there were no groups, those present at the meetings were anxious to have the syndicate system adopted. It was the unanimous opinion of those who attended these meetings that the discussions on cheesemaking were of great benefit. The resolution regarding rejected milk, which was passed by the Ingersoll makers, was agreed to, and passed without a dissenting voice at each district meeting; and so the good work spreads. These meetings will be held annually. It is the desire of the Directors of the Asociation that the whole of the cheese factories in Western Ontario should be under the syndicate or group system for instruction, and they hope to accomplish this during 1904.

Arrangements are practically completed to form two more groups next year. The groups will then be Ingersoll, Simcoe, Brantford and Dunnville, Stratford, Woodstock and Norwich, London and West, Ljstowel and Ripley. These seven groups will include nearly all the principal cheese-producing districts in Western Ontario.

In conclusion, I must express my appreciation of the manner in which the staff of instructors carried on the work during the season. They were at all times anxious and willing to do their best to carry out my slightest wish, and do all in their power to improve the quality of our cheese.

I also wish to thank the Directors of the Western Dairymen's Association for their hearty co-operation in carrying on the work of instruction during the past season, and trust that none of us shall ever grow weary in endeavoring to uplift and improve our great cheese industry.

Mr. Steinhoff: There is one group of factories that has been under the present system for two years in the Lambton district, and I would like to ask Mr. Barr if he has noticed the improvement there that he might expect?

Mr. Barr: I was not over as much of the Western group this year as I would like to have been, and I think the best way would be to ask the cheesemakers of that district to tell us what they think about it I have been told by some of the makers that

they could see the effect of last year's work there this year, and that the milk was better.

Mr. Brown: I must say with regard to the quality of the milk in our factory that there has been a decided improvement, and I do not think there is any other way of getting the desired improvement except to start at the source. We cannot expect to improve the quality of our cheese unless we get the raw milk in first-class condition, and this method of instruction is the only way I know of getting it.

Mr. Paget: We should like to hear from every factory man as to whether the system we have adopted is considered a good one by them, and we would like to know whether or not you appreciate what we have been doing.

A Member: My impression on this matter is this, that I think the bulk of the work and the bulk of the money from now on should be spent in instructing the patrons. I think the cheesemakers have had their share of that work. Unless they get good milk they cannot make gilt-edged cheese, and I think the work now should be to educate the patrons to produce good milk. (Applause.)

Mr. Barr: I did not go into the making of cheese, simply because the instructors should take up all the different phases of cheesemaking, and I do not want to touch on their work at all. When you start any line of work if it is going to be successful there should be some ground work and system, and if you start it on a proper foundation it will grow. Now, I find that on visiting the factories that although the makers are making good cheese we find a tremendous difference between one factory and another, and you see how far some of them are behind others, and you cannot help feeling that you must give a good deal of attention to the makers yet, as we have so many factories that are not making the finest cheese.

A Member: Put them out of the business.

Mr. Barr: Some of them should go out; that is right. Some of the makers are not handling the work in the best way simply because they think it is not necessary. Now, I want to get down to these makers and show them what they should do. We have done a good deal this year along that line, and the makers and instructors are acting together better than they did last year. We have got the ground work laid. I am not thin-skinned, and I will stand any amount of criticism with regard to our instruction. We are going to try and do more work among the patrons next year.

A Member: Where there was much difference in the quality of the cheese, was it the fault of the makers or the fault of the milk they were getting?

Mr. Barr: That is a good question, and a fair one, and I must say right here, that as far as I know that the flavor of the cheese is due to the quality of the milk. We have a flavor in the northern section that I never found in the south. I have always attributed that in the past to the fact that we sent whey home in the southern section and not in the northern. Another reason that is given is that it is cooler in the north than it is down here. I do not know that that is true, because I have worked in both places. We find more difference in the texture, then, in any other particular quality of the cheese; and I believe the texture is narly all due to the handling of the curd. We have better makers in some places than we have in other places, who take more time, and when we get all our makers to do that we will have a finer texture. If you would see the way some cheese are finished it would make you so hot that you would hardly know what to do with the man. Some of them with stand-up collars, and all cracked. I think a man who spoils goods like that could not have been brought up properly. I think our mothers have a lot to do with the quality of our cheese to-day. And when you start to make a man clean over, you have a big contract. If we could get all the makers to finish the cheese as they should be, it would be a great deal better. Last year I saw cheese that I was ashamed of, and I do not know anything that we can do with these men except to get them out of the business. It seems to me that each instructor will go round and spend day after day and

strive to improve some of the makers only to find them as bad as ever in the fall. I often feel like cutting those men out altogether, and never giving them any more assistance. We find some men that want to be helped, and we cannot give those men too much help. Some of our instructors were working night and day last year to get a better quality of cheese, and trying to get the cheesemakers to put their factories in better shape.

A Member: What about chewing tobacco in the factories?

Mr. Barr: Some men can chew tobacco and be clean, but I am very much opposed to a man chewing. I never allowed a man to chew tobacco in my factory; the boys could smoke when they were through and away from the factory. I do not want to say that smoking is wrong, because I smoke myself; but I do not smoke around the factory.

A Member: What about high-priced labor and the difficulty in getting laborers?

Mr. Barr: I never saw labor so scarce as it was this year. In some places men were doing more than they ought to do. Laborers were very independent this year, and that had something to do with the condition in which the factories were kept.

A Member: Do you not think that nine-tenths of the bad flavor was the result of dirty whey tanks?

Mr. Barr: No; I do not. The whey tank is a bad feature, and what surprises me is that when our factorymen know that the whey has to go back they do not take better care of their tanks. I think it is up to the factorymen to get a better way to take care of that whey. That is one of the things that we have got to improve. We will have to send that whey clean and sweet.

A Member: Do you mean as sweet as when it comes out of the vat?

Mr. Barr: It would be impossible to do that, but it could be sent home sweet if pasteurized.

A Member: Have you had an experience in pasteurizing whey?

Mr. Barr: We have always heated it to 125 degrees. I have often done it, and I could not see any bad effects from doing so.

A Member: Do you not think fermentation would go on faster at 125 degrees than it would at 90?

Mr. Barr: I think it would be quite possible to heat it to 160 degrees.

A Member: Do you not think the solids in the whey would be partly cooked and come to the surface?

Mr. Barr: I have never seen it happen that way. Mr. Gamble can tell us what would come to the top of the whey in pasteurizing.

Mr. Gamble: Albumen.

Mr. Barr: I think I told you once before what I saw a Frenchman do. He had a small tank in his engine room that could be cleaned out with a broom or brush at any time, and you must have a tank that you can clean out. They will not be cleaned very often if you have to bail them out. If you have a shallow tank with a drainway from it, it will be much better. I believe the proper thing would be to have a small cement tank not very deep, and elevate the whey.

A Member: You would not recommend putting the wash water in?

Mr. Barr: No; I think that is one reason why we have so many nasty flavors. If you go into the factory when they are washing up the press cloths, and if all that goes into the whey tank, what a mass of flavor you have going into your whey tanks.

A Member: Would it pay a farmer to go to that expense to get his whey home?

Mr. Barr: I believe it would in the long run. If we are going to be troubled with bad flavors the way we have been, the cost would be a mere nothing to what you might lose on the cheese.

A Member: Have you found some factories that will not allow them to put the whey in the cans?

Mr. Barr : We have some factories that do not return the whey.

A Member : Did this Frenchman pasteurize his whey ?

Mr. Barr : Yes ; at 155 or 160 degrees.

Mr. Ball : I would like to ask Mr. Johnston what he pasteurized at when he found the solids coming to the top ?

Mr. Johnston : One hundred and fifty-five degrees.

A Member : How would you cool your whey down ?

Mr. Barr : I would not cool it down ; I would leave it hot, and let it go home hot in the cans.

A Member : Would it be an advantage to eject ?

Mr. Barr : I do not know that it would be. Putting it up with steam is better than elevating it with a pump, but it costs more. If you have your tanks arranged so that you can pasteurize with the engine it would not cost you anything.

A Member : I think if the whey tank is kept clean, there will not be any bad flavors. We do not care so much for the acid in the whey if we do not have any bad flavors.

Mr. Barr : If it is clean acid and no other flavor, it will not inure the cans, except to take the tin off them ; but that is one of the worst conditions we have. But if our factories would keep dry floors, and run the whey into the whey tank, and keep the whey tank clean, we would have very little trouble with the whey being off flavor, provided we do not put in off-flavored milk. You should not have any covered boxes or troughs about your factory. Have all your drain boxes and drains open so that you can clean them out. Closed-in boxes or tiles for whey is one of the worst things you can have.

A Member : If the patrons insist on getting the whey back, should not they provide proper wrought iron receptacles to hold it in, and keep it clean ?

Mr. Barr : They ought to do that, but you will find patrons who think they ought to get everything. In Innerkip the patrons pay a man to keep the tanks clean and divide the whey. The trouble with the majority of the tanks is that you cannot keep them clean. A dirty tank will, I think, kill the goosey flavors, but you will get other flavors worse than that.

A Member : I have been very pleased to hear this discussion. Some years ago I was on the Board of Health here in one of the townships, and in the neighborhood of a cheese factory, when there was an epidemic of typhoid fever. We examined the factory, and we ripped up the floor, and of all the smells that I ever smelt that was the worst, except an old silo. (Laughter and applause.) It was owned by a private individual, and we requested him to make repairs. Three or four people in the locality died from typhoid fever, and we had to prosecute that man before he would clean up.

A Member : I have been a good many years in the business, and I think we are paying more attention to the care of the whey, and we are doing very important work. I have tried pasteurizing the whey, and I find it too expensive for all the advantage you get. The important thing is to keep the tanks clean. In pasteurizing I found there was a certain sediment that seemed to rise from the bottom. I found that if I heated it to 145 degrees that did not take place.

A Member : A number of years ago I made an effort to keep the whey from going to the patrons by feeding it at the factory, but it was not a success. In this part of the country the patrons have to have the whey. I had a great deal of trouble with the gas, and I put up an elevated tank, and cleaned out my tank every day, and from that day I have never had any trouble with gas. I think that it is clear proof that a good deal of the gas comes from dirty whey. I put up that whey with the ejector, and I have had no difficulty whatever.

A Member : Can you get a test of milk from the Babcock tester, after the milk has been received from the cow, say up to a period of three days, and can the man who sells the milk gets a fair and correct value for his milk by such a test ?

Mr. Barr: You mean a sample of milk that has been kept three days before it was tested? Would it be a correct test? Do you use a preservative in the milk?

A Member: No; we do not put any preservative in it.

Mr. Barr: If the milk has been kept three days, that is too long to keep it. If the milk has not been cooled down too quickly after, and a cover put on so that the milk would not become thick, then you might get a test. I would not say that you would get an accurate test if the milk was kept three days.

A Member: Supposing it is thick, could you not under any circumstances get any kind of a test.

Mr. Barr: If the cream was thick and tough, you could not get an accurate test.

A Member: What is the use of testing it?

Mr. Barr: There is no use having the milk like that.

A Member: I would like to know how it is that the Babcock tester makes a difference in the cream that is produced and run through the separator. What is the reason it does not set the same every time?

Mr. Barr: You mean a man having a separator for his own herd of cows would not get the same test every time?

A Member: Yes.

Mr. Barr: There are so many things that affect the thickness of the cream. You would have to turn the machine at exactly the same speed, and feed it at exactly the same speed, and you would have to have the milk at exactly the same temperature, and then I question very much whether you would get exactly the same test. There are so many little things that would affect it. Yet you should not think there was anything wrong if your test is not the same, because I think it is almost impossible for any person to put the milk through the machine exactly the same every time.

A Member: Would the same cow give the same richness every day?

Mr. Barr: No; it would vary very much.

A Member: We have a little factory out at Tynemouth, and we have a great deal of trouble with the patrons in that way, and I have been very anxious to find out the reason. Our buttermaker could not give the reason, and I have been anxious to know the reason why it should vary.

Mr. Barr: There should not be any trouble; the speed and temperature will always affect the thickness of cream, and very little will make quite a difference, and the percentage of fat in the milk might affect it a little. One cow might change a good deal, but a herd will vary little each day.

A Member: There is a matter I would like to bring before the Association. I understand that you have a grant from the Government, and you have officers who look after the cheese factories and the creameries. The man who runs the creamery tests and keeps account, and the man who supplies the milk does not know anything about the test, and he has no way to protect himself, and he does not know whether his milk is properly tested.

Mr. Derbyshire: There is no doubt you have in your own hands the selection of your own secretary and treasurer to keep your accounts, and you have at the same time a qualified man to keep these tests, and to see that an accurate test is made.

Mr. Paget: I do not think the money of this Association should be used to send out officers to test cream and look after the accounts in the factory. (Applause.) There are plenty of men throughout the country who can do this business, and I think that the money that the Government grant to this Association would certainly be squandered if it were used in that way. I think we in this work should advance the quality of the product. I have been employing men for the last 20 years, and I would not employ one who could not be trusted implicitly, and that I could not have confidence in, and that would not do what was right between my patrons and myself. In my experience of 21 years in the business, I have just found one man that I could not

trust in all these years, and I have employed a great many. If the patrons cannot trust their makers, they should procure one whom they can trust. A few years ago we used to call our instructors "inspectors," but we do not do so any more.

A Member: I am informed that this gentleman is a Police Magistrate for the County of Elgin, and I think that it is his duty to look after honest and dishonest men, and I think it is scarcely fair to lay a charge of this kind against this Association.

Mr. Barr: I must admit that I am not as well acquanited with the creamery meen as I ought to be; as far as I know they are honest, and if you have dishonest men you had better get rid of them as quickly as you can.

A Member: What I am doing is in the interests of a good many gentlemen here who have asked me to put this question. I suppose the object of the Association is to benefit the farmers of Ontario who pay the taxes. Here is a farmer supplying milk to a creamery, and I think the Government money ought to be expended in the interests of these farmers. The way the business is conducted it is impossible to get the right value of your milk. I supplied milk a good many years to a creamery, and in the winter season they would gather it two and three times a week, and when they came for it the cream would be more than an inch thick on top, and it would be leathery, and it would be sent to the factory in that condition.

Mr. Barr: That cream belonged to the man until he has brought it to the factory; he is responsible for the quality of the milk, and if he does not know how to take care of that milk, whose fault is it? We are spending six or seven thousand dollars a year in Ontario trying to get on to these people. It is the fault of the Dairymen's Association? I think it is the farmer's fault. He can come out to these men and learn how to take care of his milk, and he can get all the literature he wants on that subject.

A Member: I am not out; how can I learn to test?

Mr. Barr: You do not need to test; but you ought to keep your milk in proper condition.

Mr. Derbyshire: If the test is the same in every case, everybody would be paid equally.

Mr. Barr: How do you know you get all that is in your wheat when you take it to the mill; do you know you get the right quality of flour? You have simply to take the man's word for it. The dairy business is on the same lines as every other business; you have got to trust your neighbors, and if they are not honest and do right, get rid of them.

MUSIC AND ELOCUTION.

The evening session was held in the Opera House, and the building was filled to the doors. The stage was beautifully decorated, and during the evening the speeches were interspersed with vocal and instrumental selections and with recitations by the best of St. Thomas talent.

NOMINATING COMMITTEE.

The following were appointed a committee to nominate the officers for the year 1904, and to report at the last session: Frank Travis, W. R. Shearer, A. R. Dempsey, W. A. Bothwell, T. O'Flynn.

ADDRESSES OF WELCOME.

Mayor Maxwell: When your acceptance of our invitation to hold your winter session in our city was made known to us we felt that we had been favored, and that you would be well located, and that you would hold a successful session here. In all of this, I believe my expectations are about to be realized, and I extend to you a hearty welcome to the City of St. Thomas. (Applause.) This welcome is made hearty and sincere from that fact that your Association is a worthy one, and that the work that it has accomplished, is accomplishing, and will accomplish for the improvement of our agriculture is and has been very great. You have been disseminating a knowledge that is of very great importance to the producers, and by teaching them regarding the care and improvement of the animal which produces a very important article of diet, and by teaching, also, methods by which you may overcome many difficulties that beset you in connection with the soil, climate and seasons, so that you can overcome these difficulties and produce an article of uniform quality and of an increased market value. You have also done a great deal in teaching improved and scientific methods in the handling of milk and the production of cheese and butter. You have also done a great deal towards sanitation and ventilation, and I do not know of anything that is more important in all the work that has been done, because cleanliness in the stable is certainly of as much importance as cleanliness in our homes. How can you produce a good article of milk, butter, or cheese from an animal which is breathing impure air; an animal which is endeavoring to purify its blood by impure air? I notice from the reports of the Eastern Dairymen's Association that they have pursued this question and these points in a very creditable manner. I am pleased to welcome you to our city to-night, and I invite you to visit our public institutions.

The City of St. Thomas is essentially a railway city. We have centred here the Michigan Central Railway, the Wabash, the Lake Erie or Pierre Marquette, and the Canadian Pacific Railway, so that you see we are well supplied in that respect. We are in the centre of an agricultural district, which, I believe, is not surpassed by any in the Dominion. We have good soil, good farms, and good water.

I am glad, indeed, that this Association has come here, and I hope it will stimulate the dairy industry in this section of the country. This used to be a grain growing section, but the Northwest being opened up has lessened the price of wheat in this district, and I do not know any better line that our farmers could go into than our dairying business. We should be pleased to have you open a cheese market in St. Thomas, and if you can see your way clear to do so, I can assure you the Council of the city will furnish you with a room free for that purpose.

Mr. W. Stewart, President of the Board of Trade: On behalf and in the name of the St. Thomas Board of Trade, it gives me very much pleasure to welcome you to our city. It will be presumption on my part to attempt to say anything to you of the great industry in which you are engaged. You will all remember the first exports of Canada were furs, after that came timber, both, perhaps, of very great importance in itself. By reason of the extinction of the supply, they quickly declined; after that wheat came to the front, and Canada was a large wheat exporter. But in time the Northwest and other countries displaced this trade very largely, and our export of wheat came to a standstill. At this stage your industry forged ahead, and continually grew, and by your successful operation you have increased to a most gratifying extent, and under these circumstances we feel that you have done us a great favor, and we very much appreciate your presence, and we trust you will carry away with you pleasant recollections of your visit to St. Thomas.

The Warden of the County also joined in the welcome to the Associational gathering.

Mr. J. N. Paget: In reply to these very kind addresses of welcome, it affords me a great deal of pleasure indeed, as First Vice-President of the Dairymen's Association to have the opportunity of saying that we very sincerely appreciate the very kind words that have been spoken to us to-night. You have not only welcomed us by your words, but I can say truly, and I think the members will bear me out in the statement, that in no city in which we have held our annual convention have we been received more cordially than we have in the City of St. Thomas. On every hand we see indications of the interest that has been taken in our coming among you, and I am sure that we appreciate your kindness.

As has been stated, the Dairymen's Association represents one of the great industries of the country, perhaps the greatest industry to-day connected with agriculture, and I am glad to hear the words of the Mayor of your city, and also those of the Warden of the County and the President of the Board of Trade. When they say they trust we will come back again to hold our convention, and also to establish a cheese market, I can assure them that just as soon as they get sufficiently interested in producing a sufficient amount of the goods we are interested in (butter and cheese), there will be no difficulty whatever in having established in your midst a market at which you can dispose of your goods.

Mr. P. W. McLagan, of Montreal: I came here at your request to see what I thought of the butter and cheese production of Western Ontario, and I expect to have something to say on that subject to-morrow. I want to say, as representative of the cheese and butter merchants of Montreal, that I have great pleasure in coming here. I have had a great deal of pleasure in meeting you, and I have got some pointers that I think will be useful. I am sorry that the East and West do not meet oftener; we have a good deal of time during the winter, and I do not think we could spend that time better than in meting each other and in learning from each other. I think there is a great deal to be learned. I have seen to-day a very excellent exhibition of cheese—I think probably the highest average exhibition of cheese I have seen in Canada (Applause.) I do not know whether an equal exhibition could be produced in the East, because we have not had the courage to give an exhibition there; but we have had exhibitions of cheese in Quebec, and I am bound to say that we have not been able in the Province of Quebec to produce an equal exhibition of cheese to what I have seen to-day. But we are making better butter in Quebec than what you do here, and I hope after I see your exhibition of butter to-morrow that I will be able to say that Quebec produces something first-class, and better than anything else in Canada. I would like to see this Association take up the transportation problem with greater energy, and impress upon the railways the importance of having more frequent icing stations and more refrigerator cars. I would like to see some one invent a car for carrying cheese that will be well ventilated, and that will carry cheese in shape. I live in Montreal, and I see the condition in which goods come out of the cars and on the wharves before going into the ships, and I think the condition of a good deal of it would astonish the men who ship it from the West, and I hope the subject will be taken up energetically, because you can improve greatly in that direction.

Mr. Ingram, M.P.: In accepting the invitation to say a few words, I would like to point out that the County of Elgin stands much better in the matter of butter and cheese than most people think. I took pains to peruse the report of 1902 for the Province of Ontario, and in that report I find a very satisfactory showing as far as the County of Elgin is concerned. I find that the Counties of Hastings, Prescott, Frontenac, Glengarry, Dundas, Russell, Lanark, lead, and that Oxford comes next with forty-three factories, and our friends in the East have taken more interest in this industry than we have in the West. The County of Elgin stands very well in the matter of cheese and butter. I find that we have some twenty factories in this county, and that is more than twenty other counties in the Province of Onario have. We have produced 48,440,076 pounds of milk, and that is more than is produced in twenty-eight

other counties in the Province of Ontario. We have made 4,539,480 pounds of cheese; that is also more than is made in twenty other counties in the Province, and the gross value of that cheese was $458,459. We have 1,620 patrons, and that is also more than in twenty counties. The value of our cheese per hundred pounds is $10.10, and we stand thirteenth highest in the Province in that respect. We have in the County of Elgin 25,430 milch cows, and that is more than in twenty-nine counties of this Province, and the acreage of pasture is 79,103, or more than they have in thirty-three other counties in the Province of Ontario. I want to add to that, that in this Province there are only three or four other counties that have less marsh or waste land than we have in the County of Elgin, so I say this industry has done pretty well in this section, and the people of Elgin are thoroughly alive to the importance of the cheese industry. We are told that Denmark produces the best butter in the world, and I see no reason why could we not do as well as the Danes. We have a grand climate in this country, and we ought to be able to hold our own with any other country in the world, and I have no reason to doubt that in the course of a very few years that we will take the lead if you gentlemen continue to devote your time and attention as faithfully as you have in the past to the furtherance of this great industry. (Applause.)

The Secretary of the Young Men's Christian Association was introduced, and said: Twenty years ago I left the farm, and for the last fifteen years my life has been spent in an endeavor to help some other fellow who has done the same thing. I have been commissioned by the Board of Directors of St. Thomas Young Men's Christian Association to come here and extend to the members a hearty invitation to visit that institution, where you will be made perfectly at home. (Applause.)

CLEANLINESS AND SANITARY CONDITIONS OF FACTORIES

By W. G. Medd, District Instructor.

Cleanliness is the most essential and distinguishing feature or property of perfect sanitary conditions. There is no place where sanitary conditions ars more essential than the place where cheese is manufactured. There is no work in which cleanliness is more essential than in that of making cheese.

The existing conditions at many factories demand that much and careful attention be given to this important subject, and I hope that the points dwelt on briefly in this paper may lead to a discussion that will be helpful to every one engaged in or interested in the dairy business.

What are the existing conditions? In answer to this question, I may say that I have inspected the sanitary conditions of many factories in the southern part of Western Ontario, and have estimated that about 50 per cent. of them are decidedly unsanitary, and that about 20 per cent. more are not at all perfect, making about 70 per cent. of the factories in the South that have no proper sanitary conditions.

But I must say that if improvements continue with such strides as during the past year, the conditions of the factories in the South will, in a very short time, equal the conditions of the factories in the best sections of Ontario. In the Simcoe district alone more than $11,000 were spent in improvements in factory buildings, plants and surroundings during last year, including the erection of one new factory.

Regarding the conditions in the central and northern districts, I cannot speak as authoritatively; I have not had the same opportunity for close observation and inspection, but from what I have seen and from what I have learned, I should say that the sanitary conditions generally are much better—better buildings, better equipment, better drainage.

Existing Unsanitary Conditions.

Many factories are situated so that it is almost impossible to obtain proper drainage. Some have but the natural drainage of the soil around and beneath them.

Floors are rotten, leaking, and foul-smelling.

Walls and ceilings are rough, unlined, and covered with dirt, dust, and cobwebs.

Water supply tainted and impure.

Dirty, greasy water barrels, from which the water is used for washing purposes.

Leaking vats and uncleaned utensils.

Filthy whey tanks.

Untidy suroundings.

No provision for the exclusion of flies.

Makers with dirty clothes and generally untidy.

These conditions exist in every degree from the moderately bad down to the very worst. They should not be ignored. Steps ought to be taken to make these conditions better; to improve the factories; to bring them up to the standard of the factories with good sanitary conditions—clean utensils, and tidy, attractive surroundings.

The question arises, How may the present unsanitary conditions be improved? Or what steps should be taken to obtain desirable conditions? Some advocate a license system, and the manufacture of cheese only in those factories that have undergone satisfactory inspection; and that as soon as a factory has fallen below the required stndard, its license be withdrawn.

The system of syndicating the factories in districts, and having each factory inspected regularly, and reports made regarding the sanitary conditions by a qualified inspector, should be of great educational value, and help towards the attainment of better conditions at each factory visited.

To obtain proper sanitary conditions at some places, it would be necessary to move the factory buildings to a better or more suitable site, and at other places it would be necessary to overhaul the factory, or to erect a new building; while at many places a thorough "cleaning up" would go a long way towards obtaining good sanitary conditions.

A few practical suggestions may be of benefit to any who intend building a new factory or overhauling an old one. And they may also be helpful to any who desire better things, and will begin with a general "cleaning up."

The first requisite, from a sanitary point of view, is a proper site. Gravelly, sandy, or loamy soils are to be preferred, as the natural drainage from these soils is generally good. In districts of clay soil, a good slope for drainage is necessary. Secure a site where good drainage may be obtained, and far enough away from swamps, hog pens, barnyards, or unclean places of any kind, to prevent injurious bacteria and disagreeable odors from reaching the factory.

Next in importance, from a sanitary standpoint, is the water supply. The supply of pure, wholesome water is a fundamental sanitary necessity. Some of the characteristics of wholesome water are perfect clearness, or freedom from sediment—there should be no sediment visible to the naked eye. Water should be quite colorless, or of a bluish tint, transparent, and sparkling, having no smell, and of a palatable taste.

To obtain good water much depends on the location of the well or spring from which it is procured, or on the purity of the stream, if supplied from a creek or river. The water in shallow wells is more liable to become contaminated than that in deep wells.

The curbing or mason work of all wells, especially near the top, should be strong, well-made and impervious, to protect the well from soakage and from surface washings.

A well drains an extent of soil around it. The area depends on the kind of soil. Therefore, it is necessary to exercise good judgment in the location of a well. Wells

placed in or near barnyards, near sewers, or near any filthy places are apt to become contaminated in the course of time.

Effective drainage is also a fundamental sanitary necessity. The drain to carry the wash-water, or factory sewage, should be large enough, and with sufficient slope, so that all the washings could be carried directly from the factory, and disposed of in such a manner as to cause no offence at the factory or to the surrounding neighborhood. The distance depends to some extent on local circumstances; but on a low estimate it should be carried three hundred feet from the factory.

At the smaller factories an ordinary drain would probably do, if taken far enough to prevent odors from reaching the factory, and emptying into a suitable place or filter bed that will readily filter, absorb or carry away the water each day. A four-inch tile would probably be large enough. The fall of the slope should be one foot or over to one hundred feet of length.

At the larger factories, or at any factory, in my opinion, the septic tank could be used advantageously. This system has been employed at many places for the disposal of sewage, where the results have been satisfactory. The tanks, which are water-tight, should be large enough to hold the accumulated washings of at least one day. They may be placed at any distance from the factory, and connected with the butters by means of four or five-inch glazed tiles, having cemented joints, or with any kind of frost-proof, impervious piping. A ventilator should be placed in the drain between the tank and the factory. The solid matter decomposes in the tank. The liquid is carried by a drain to a safe distance, and distributed for irrigation purposes. The tile of the distributing drains should be two-inch, laid about six feet apart, and with a fall of not over six or eight inches in one hundred feet of length. Common tile may be used, and joints left one-quarter of an inch apart, the depth underground depending on the nature of the soil. Ten or twelve inches would likely be sufficient. If the soil in which the distributing pipes are laid is naturally wet, under-draining will be necessary to get satisfactory results.

For cleaning and disinfecting drains, chloride of lime, copperas, or lye may be used. All main drains should be trapped to prevent foul gasses and odors returning to the factory.

The importance of constructing factory buildings on sanitary principles seems to have been entirely overlooked, or unthought of, in the building of all the cheese factories that I have seen, with the exception of a few more recently built. In dealing with this part of the subject, let me say that well-made and well-laid floors are indispensable. The surface of the floor should be smooth, and impervious to water. In the make-room it should have an even slope throughout, so that when washed all the water will flow easily and rapidly to the gutters or drains. The gutters should be made with plenty of fall, with smooth sides, to facilitate the cleaning each day.

A cement floor is the most sanitary; although a good wooden floor, if painted or kept dry, will last a long time, and has a bright appearance.

The walls and ceilings should have a smooth, even surface, and should be whitened or painted. Whitened walls are cheerful, and where lime is used, a sweet, purifying effect is realized. Lath and plaster make a good smooth wall, and with cement from the floor to a height of about five feet, the sanitary conditions should be excellent.

As pure air and sunlight are essential to sanitation, the factory should be well provided with windows, and with sufficient proper ventilation.

The windows and doors should be fitted with screens for the exclusion of flies.

Cleanliness of utensils should always be insisted on, especially in regard to the utensils with which the milk or its products come directly in contact. Milk vats, curd sinks, curd mills, cheese presses, and many small utensils require scrupulous care in the matter of cleanliness. If they are neglected and left unclean the conditions at once become a favorable medium for the growth of detrimental bacteria, besides entailing considerable extra work in the factory. All utensils should be made so as to be easily cleaned.

The old-fashioned wash-water barrel should be done away with, and a hot water tank and wash sink installed in its place.

At the majority of factories the whey is returned to the patrons in their milk cans, often from tanks so situated that it is impossible to keep them clean. Consequently, the impurities of the tanks are distributed over the whole surrounding neighborhood.

Very often leaky whey tanks or careless milk haulers cause the surroundings of the tanks to become saturated with whey. The effects of such conditions are very offensive. The cause should at once be remedied, and all small drip should be conveyed to the sewer. If leakage should occur, wood ashes, dried earth or clay are excellent deodorizers, especially the dried earth.

No floor washings or filth should be allowed to enter the whey tanks.

I am not prepared to say what is the best material for the construction of whey tanks. Cement tanks, if well made, with smooth inside surfaces, I think, should prove satisfactory.

More attention should be paid to the surroundings of the factory. At most factories they are altogether neglected. The roads should be gravelled. The yards should be free from stagnant water and whey soakage. They should also be free from weeds and rubbish.

Nothing is more attractive than a covering of nice, green grass for the factory yards and lawn, and, besides, the sanitary effect is good. The grass will to a large extent prevent the accumulation of dirt. A few trees also add to the attractiveness of the surroundings, and if properly placed have no injurious effect.

The fences should be kept straight and tidy, not only for the sake of appearance, but also to prevent the accumulation of weeds and rubbish.

Personal cleanliness on the part of the maker is essentially requisite. Their persons, their clothes, and their habits should be scrupulously clean.

In conclusion, I may say that if proper sanitary conditions could be obtained at every factory—and they can be—and corresponding conditions on the farms, very few of the present objectionable flavors would remain to cause trouble in the manufacture or sale of dairy produce.

INSTRUCTION IN CREAMERIES IN WESTERN ONTARIO, 1903.

By George H. Barr, Chief Instructor.

The Directors of the Western Dairymen's Association thought it advisable that more instruction should be provided for the creameries in Western Ontario, and suggested to the Minister of Agriculture that two men be appointed for this work. This the Minister willingly did. The creameries were asked to contribute towards the expense of these men a fee of $5 per creamery.

Mr. J. A. McFeeters and Mr. J. C. Bell were engaged as instructors. The territory west of Toronto was divided into two sections, Mr. McFeeters taking the Eastern and Mr. Bell the Western half. We decided to visit every creamery, and see how many would contribute the fee. Those agreeing to do so would be visited four or five times, while those not paying the fee would only be visited once or twice. We found 59 creameries in operation, and of those 32 have paid the fee. Mr. Bell's district includes the following creameries, and were visited as follows :

Five visits—Chatham*, Petrolia*, (Strathroy*, Sleightholm), Vanneck*, Londesboro'*, Winthorp*, Kenilworth, Springbank*, Teeswater*, Bluevale*, Whirlcreek, Holmesville*, Bervie*, White Church, Exeter*, Winchelsea*, Centralia*, Beachville*, Princeton*.

Four visits—Corbett*, and St. Thomas*.

*Those marked with a star paid the fee.

Two visits—Stratford, St. Mary's, Kerwood.

One visit—Strathroy, C. & B. Co., Medway, Paisley, Dunkeld, Formosa, Ayton, Burford, Underwood, Neustadt—33.

Thirteen of those creameries use separators. The balance are cream-gathering.

The greatest defect in the cream-gathering creameries is the receiving of over-ripe and thin cream. During the warm weather the cream when it arrived at the creamery showed as much as .6 and .7 per cent. of acid, when it should not have been more than .3 per cent. The percentage of fat is nearly always too low, in some instances being 15 per cent., when 30 to 35 per cent. would be better.

The cream was pasteurized during part of the season at Springbank, Kenilworth and Ayton. This undoubtedly improves the quality of the butter. There are only a few of the creameries having proper cold storage. In some instances in hot weather 56 degrees was reported as the temperature of the cold storage, the lowest being 28 degrees. The oil test is used in all the cream-gathering creameries.

The reports show a decided improvement in the cleanliness of many of the creameries during the season. The quality of the butter is reported finer, and in all the creameries there is improvement in some respect.

Mr. McFeeter's district includes the following creameries, and were visited as follows :

Seven times, Baden*; six times, Dundalk*; five times, Dundee*, Ayr*, Wiarton, Owen Sound*, Whittington*, Vinemont*, Jarvis*; four times, Grand Valley*, Underwood*, Beeton ; three times, Neustadt*, Holstein, Lamlash, Tara, Chesley, St. Jacobs ; two times, Alton, Toronto Butter Co., Nelson, Alliston, Fergus, Hillsburg, Elmira ; one time, Kenilworth, Sheffield, Aberfoyle, Dunkeld, Paisley, Palermo, Desboro—total 32.

*Those marked with a star paid the fee.

Several creameries were visited by both Instructors.

Four of these creameries have separators, and the balance being entirely cream-gathering.

At Jarvis creamery the cream was pasteurized all season giving good satisfaction. At Jarvis, Elmira, and the Toronto Cream & Butter Co. creameries, the Babcock test was used for testing the cream instead of the oil test, and the proceeds divided according to the Babcock test. Baden and Dundalk adopted this method during the season, and in all cases it gave good satisfaction, having a strong tendency to lessen the amount of acidity in the cream.

I was told by a cream-hauler that some of the patrons would not send their cream until it got sour, so they would get a better test from the oil test. Surely it is time our creamery men were adopting different methods to overcome such ideas. The use of the Babcock test will do away with this argument at once.

The cream was delivered in many cases with .6 and .7 of acid, and had to be held till the next morning before churning. It is also very thin. The farmers are losing tons of skim milk off the farm by sending such thin cream, besides injuring the quality of the butter, as thin cream sours much quicker than does thick, or rich cream. No cream should test less than 25 per cent., and 35 per cent. is better. Many of the creameries are reported as poorly equipped both in apparatus and cold storage, and some of them are not kept clear. If there is any place on earth that should be kept clean it is a creamery. "Clean them up, boys, and give yourselves a touch." A few of them are kept sweet, clean and tidy, and it is a pleasure to go into such places.

It would appear from results obtained that pasteurizing the ripened cream improves the quality of the butter. The expense in connection with doing this will no doubt hinder the adoption of the system. Still, I believe the improvement in the quality of the butter will justify the expense

Preservatives have been used in nearly all the creameries, and it would appear that the trade requires it. Just what is the best preservative is not known, although all the sellers of preservatives claim theirs is the best. Our experimental stations

should have taken this subject up, and had some information for our creamery men regarding it.

Our export boxes are not as good as they should be, and I would strongly urge our Western creamery men to secure better boxes, as this is one disadvantage our Western butter is laboring under. The work of instruction in the creameries has proved very satisfactory, and I am quite pleased with the interest the majority of the creamery men have taken in the work, and they are becoming more alive to the necessity of adopting better methods if they are going to make a reputation for Western butter.

The expense in visiting the creameries is very heavy, as they are scattered over such a wide territory, making it impossible to visit them as often as the cheese factories are visited. I should like very much to see every creamery in Western Ontario make use of our Instructors and pay the fee.

The creamery instructors are both capable men, anxious to secure the conditions that will improve the quality of our butter. The weak points in our Western creamery work is over-ripe, thin cream, and every effort must be made to overcome these two defects, if we are going to maintain our position as producers of fancy dairy products.

Mr. Chairman: Mr. Medd's paper has covered the ground very extensively, and I think you ought to spend a few minutes in discussing this paper.

A Member: I would like to ask if he knows any cement tanks built that would resist the acid in the whey. I built a cement tank and only used it one year; the amount of the acid in the whey acted on the cement in such a way that it becomes crumbled, and leaves a rough surface in a very short time, and I came to the conclusion that it would not be a very good thing with which to build a tank.

Mr. Medd: I think if the cement tank were properly constructed it should withstand the acid; you should have a very smooth surface, so that the tank can be properly cleaned out.

Mr. Barr. The only cement tank that I know of, that has been in use any length of time is at Bright. It has been used for five or six years. They had to put a wooden floor in the bottom. The bottom of the tank got rough, and was destroyed by the acid in the whey. Mr. Johnston said if he were putting in a cement tank, he would put in a wooden bottom. The sides are apparently all right; Mr. Ballantyne has one at Black Creek, and it is the very best tank I ever saw. There are not very many of them in the country.

Mr. MacLaren: Do you not think it depends on the quality of the cement?

Mr. Ruddick: I think there is a point that should be understood with regard to cement tanks. They should be well cured before using; you should not use them until they are past the stage where they absorb the moisture. You know that when you are hardening the cement it will absorb a good deal of moisture, and if you put the whey in too soon it will absorb the whey. I have seen a great many cement tanks in New Zealand. I thought perhaps in this country there might be some difficulty on account of the frost in the winter time; but there does not appear to be any difficulty if the foundation is fairly well drained. I think it is very important in making the cement whey tank that you should have it finished for some weeks before being used. One of the great difficulties in cement work is that so many people undertake to do the work who do not know very much about it.

Mr. Barr: If you were to build a cement tank would you put it up in the same manner as you do floors, weak cement outside and a good smooth surface inside?

Mr. Ruddick: I would make it of a good hard surface, plaster it on the inside and outside both.

The Chairman: I think the question of the use of cement is one of the most important questions we have, and I think we should spend a few minutes discussing the subject.

Mr. Ruddick: If you write to the Cement and Engineering News, Chicago, you can get a pamphlet from them for fifty cents on the use of cement; it is the best work I have seen on the subject.

Mr. MacLaren: It depends a great deal on the quality of the cement and the sand. All cement and sand are not alike. You can get one quality of cement that will test 800 and 900, while another quality will not test more than 300 or 400. In the same way, you can get different qualities of sand. If you get first-class cement and first-class sand, you will make a first-class job; and you must have the cement perfectly smooth inside, and I think the whole secret is to get the proper amount of the proper material.

Mr. Ruddick: I think they are making more progress in Belleville in connection with the factory building than in any other part of Canada. Last year I think there were 30 cement floors put in, and two factories have been constructed of cement blocks, and another of the concrete. They have been using a building all winter constructed of just an ordinary concrete wall, and they claim they have had no difficulty from frost in the building except moisture gets on the wall over night. There is no insulation whatever. Concrete is not a very good insulating material. I believe that cement is going to be the coming material for factories, because it has so many things to commend it. It is sanitary if properly constructed, and it is durable and cheap. Take the length of time a concrete floor lasts, and I think it is much cheaper than wood. I would be glad to see every factory in this country fitted with cement floors, so that you can have proper drainage.

BACTERIOLOGICAL NOTES ON BUTTER.

By F. C. Harrison, Bacteriologist, O.A.C., Guelph.

I desire to say a few words with regard to butter, and particularly with regard to the bacteriological life as it exists in cream and butter. Perhaps the most striking fact in the butter business of the past year or two has been the large increase of cream-gathering factories, and this brings forward fresh problems to solve and makes it more difficult for the buttermaker to make a product which will be of good flavor and good keeping quality. The introduction of hand separators, and their use on the farm, has considerably increased the difficulties of the buttermaker, but there may be, and probably is, a better method of overcoming the abnormal fermentations we find existing in much of the cream which is sent to cream-gathering factories.

There exists in cream a multitude of bacteria of a considerable number of different species; each different species producing its own peculiar characteristics in the cream and butter. Fortunately for the buttermaker, and for ourselves, the right kind of bacteria are usually present in the largest numbers. These beneficial bacteria belong to a class of organisms which are called the lactic acid bacteria, and they produce the normal sourness in milk and cream, and, if it were not for the ascendancy of these microbes, the buttermaker's difficulties would be considerably increased.

It is very necessary for the buttermaker to understand what should take place in the normal fermentation of cream, and what takes place is somewhat as follows: The lactic acid bacteria, by their quick growth, out-distance all other species present. They ferment the milk-sugar and produce lactic acid, the sourness of which is perceptible to our sense of taste. These bacteria also set free certain volatile acids, and probably have some action upon the casein or curd, their united action upon the milk-sugar and casein producing the aroma and flavor of butter. During the production of lactic acid, the casein or curd is gathered together in little masses, and these are easier to eliminate during the process of churning than the casein before it has been precipitated or curdled by the action of the acid bacteria. There are a number of varieties of these beneficial lactic acid bacilli, and they produce different effects upon the color and firmness of the

butter. We have noticed considerable differences in color and firmness of butter made from pasteurized cream, inoculated with various cultures of starters of lactic acid bacteria. Some cultures that are on the market contain lactic acid bacteria, which have marked effects upon the color and firmness of butter. These, however, are minor points compared with the flavor and keeping qualities of butter.

The development of other bacteria side by side with the lactic bacteria produces different flavors in cream, depending, of course, upon the numbers of the injurious bacteria present, and their ratio to lactic acid bacteria. The above is an outline of what takes place in cream, separated from milk, which has been carefully handled, all due precautions having been taken with regard to cleanliness. Unfortunately, such methods of cleanliness are not always followed, and we find a large number of unusual and abnormal flavors in a great deal of the cream that is sent to the factory. In some cases, we have the development of organisms which can grow side by side with the lactic acid bacteria, and which are not restrained by the development of acid. Most yeasts are able to live and multiply even in milk or cream, which contain as much as 1 per cent. of lactic acid. This peculiar property of yeasts renders them very difficult for the buttermaker to contend with, as, in most cases lactic acid bacteria hinder the growth of other undesirable germs which may be present. Yeasts are usually found upon the fruit, leaves, and branches of trees, and, to a certain extent, upon the surface of the ground, where they may be dislodged, and waited about by air currents. On this account, it is advisable to keep the cans covered, and not to place them under the shade of trees. Many injurious bacteria get into the milk from the stable air, or from the barnyard, whilst milking is in progress, and undesirable organisms from these places have a very bad effect upon the flavor of butter.

Effect of Pasteurization upon Bacteria. Pasteurizing, or heating, the cream for various temperatures kills a large number of the bacteria present. The efficiency of the operation depends upon the amount of heat and the length of exposure to the heat; but in factories continuous pasteurizers are used, and hence the cream is only kept for a few moments at the pasteurizing temperature The best temperature for pasteurizing is about 180-185 deg. Temperatures in the neighborhood of 140 deg. are too low, as the lactic acid bacteria are easily killed, whilst many of the injurious species are able to stand that temperature.

Most of the cream delivered at factories is already in an over-ripe condition, containing millions of lactic acid bacteria, and very often injurious speces, whch have produced abnormal flavors in the cream, and in order to get the best results from such material it is necessary for the buttermaker to pasteurize the cream, neutralize it with sodium carbonate, and again ripen with a pure culture. This method is an improvement upon the one used at the present time in most Canadian factories, but even by this method it is impossible to obtain such a fine product as would be obtained by using perfectly sweet cream and allowing it to ripen under the buttermaker's control.

Effect of Certain Water Bacteria upon Butter. During the course of buttermaking, considerable quantities of water are used for washing the butter, and this step may be instrumental in adding injurious bacteria to the butter, which spoils its keeping quality. During the past year, we have examined a number of samples of factory water, and some of these contained an organism which has an injurious effect upon the keeping quality of butter. This organism, which is called the fluorescing bacillus of water, is frequently found in river and well water, and produces staleness and abnormal flavors upon the outside of a package of butter. The organism requires air for its development; hence its effect upan the butter is first noticed upon the outside of the package. "Stale outsides" is a complaint frequently heard from the butter exporters, and we have isolated from such butter this injurious organism, although we occasionally find that it is due to the development of certain moulds, especially one which is called "Oidium lactis," or the odium of milk. If the buttermaker suspects that the factory water is not pure, or contains injurious organisms, he should have it analyzed, and we shall be

glad to analyze any samples that may be sent to the College for examination. Water used for washing butter may be pasteurized or boiled, and then cooled down again to the required temperature.

Methods of Treatment. In order to control the abnormal fermentations, we should begin with the farmer and educate him to the danger which milk runs with exposure to the air, or undesirable surroundings, and emphasize the importance of keeping milk and cream cool, as a low temperature will prevent the rapid multiplication of bacteria. The importance of getting the cream to the factory in a sweet condition should be pointed out. If it is impossible for the farmer to cool down his milk sufficiently to keep it sweet for three or four days, a small amount of preservative may be used, and for this purpose boracic acid in quantities not more than 12 grains to the quart could be used. Farmer pasteurizers are also sold by many manufacturing establishments, and there is no reason why a farmer should not deliver pasteurized cream to the factory. It is better to employ this method than to use preservatives.

THE COOL CURING OF CHEESE.

Mr. J. A. Ruddick, Chief of Dairy Division, Ottawa, then delivered an address on the above named subject. A report of this address will be found in the report of the proceedings of the Eastern Convention.

Mr. McFarland: Is ten per cent. of formalin enough?

Mr. Ruddick: Yes, I think so. If you buy formalin in the drug stores and other places you are apt to get it very, very weak. I have some of it that was not more than two per cent. in strength. You know formalin is forty per cent. of gas and water, and it can be made with just as little as they like in preparing it, and a great deal of it is very low in strength. Any one can tell whether the solution is strong enough by putting a piece of cotton rag in it, and if it is very near your nose you will soon know whether it is strong enough. It should be that strong that you could not put a piece near your face without having yourself nearly suffocated with the formalin on it.

I would not recommend anyone to undertake to maintain a low temperature without some means of circulation to carry off the moisture, because if you do not you will simply have the place reeking with moisture, and it would be impossible to keep the cheese from moulding, and they would lack in rind. We had at Cowansville, Quebec, and Woodstock, Ontario, cold storage rooms, on which I made calculations that, if all the water they evaporated out of the cheese in these rooms had been retained in the room there would have been 1 1-2 inches of water on the floor at the end of the season. This moisture would come from the cheese. Of course, the very best way would be mechanical refrigeration, but that is pretty expensive. If I had to build these curing rooms over again I do not know that I would alter them in any respect so far as the cooling is concerned. There is a good circulation of air, and we can get the moisture down as low as we care to have it, and there is no difficulty about cooling; in fact, we can easily make it too cool. I need not describe the building at any length, for I think you can see and understand the building by this diagram. At Brockville we handled about 10,000 cheese, and put in about 130 tons of ice, and there was considerable left over at the end of the season. So that you see it does not take a very large quantity of ice where a building is properly constructed. I estimated 40 cubic feet of ice to the ton.

Mr. McFarland: Would it improve that curing room if you built it up with stone instead of using lumber?

Mr. Ruddick: I do not think it would be any better. It might be better in some places. This stone wall is insulated inside by two ply lumber and two ply paper. An ordinary stone wall would not be sufficient.

A Member: Would hollow cement blocks be better?

Mr. Ruddick: Yes, they would be better. I cannot say as to how efficient they would be, as I have had no experience, but on general principles the hollow space in the blocks would be a decided advantage. There was a factory built in Prince Edward County last fall with cement blocks, the same as the dairy building at Toronto Exhibition, and they are depending wholly on the single wall of these hollow blocks. I think it would be better to line it inside.

A Member: Do I understand you to say the coolness and the ice would absorb the moisture in that curing room?

Prof. Ruddick: We do not have them mould up to ten days or two weeks. After ten days they begin to show a little. Remember, we were handling a very large quantity of cheese, taking in 150 cheese a day, and that means a great deal more moisture than you would have in a factory. These rooms are only 40 x 60.

A Member: Would the consumption of the moisture have a tendency to consume the ice?

Mr. Ruddick: The moisture did not appear much. Of course, the heat in the air did melt the ice: that is what the ice is put in for.

A Member: How was the construction of the wood part?

Mr. Ruddick: These plans show the insulation of the ice chamber. Plans can be obtained from the Department at Ottawa on application.

Mr. MacLaren: That construction is rather expensive?

Mr. Ruddick: Yes; it is expensive.

A Member: What would you estimate as the cost of such a curing room?

Mr. Ruddick: I would not like to estimate the cost. There is such a difference in the cost of materials in different parts of the country. I have been making plans of factories, including this cool curing idea, and we have got out a bill of material required, so that any person can take the local price and figure it up. We have full working plans and specifications, so that any person can take them and you can let your contract. I have some with me at the hotel if you wish to see them.

A Member: Were these cheese that you put in the cool curing room left in the boxes or taken out?

Prof. Ruddick: They were put in the boxes after paraffining, and then left in the boxes until shipped. We cannot find that it makes a particle of difference whether the cheese are in the boxes or out of them, so far as curing is concerned, but it does make a difference in the cheese that are not paraffined. The boxes contain moisture in the space between the cheese and the box, and the cheese moulds a great deal. Last year we had some Stilton cheese specially made, and the day after they were taken out of the press they were put in a tin case and hermetically sealed, and they were just as nice as could be when taken out at the end of eight months. We find it is better to put the cheese in boxes without paraffining, because in handling them after paraffining you deface them.

A Member: Do you not turn them after putting them in boxes?

Mr. Ruddick: We turn them once a week.

A Member: If you do not turn them, does the moisture remain the same?

Mr. Ruddick: Yes. I have seen cheese that have gone eight months from the day they were made, and they do not appear to show very much difference; but I am not advising you to leave green cheese on the shelf without turning them, because turning them helps the cheese, and helps the rind. I am sorry to say that you are away behind the times in this part of the country, because you do not use these permanent cap cloths. Where they are used it does not make so much difference.

A Member: I would like to ask Prof. Harrison what proportion of solution should be used for preservatives?

Prof. Harrison: Boracic acid in the proportion of 15 grains per quart of cream or milk, will preserve for about a week. After that there may be certain bacteria, cer-

tain moulds, that may develop ; but that proportion of 15 grains of boracic acid per quart is the highest that should be used. Salicyclic acid is used to some extent, but I would not recommend it so much, because we are not quite sure of its helpfulness. The authorities rather condemn it. It requires about four grains per quart to do what 15 grains boracic acid will. If you use sodium you merely neutralize the acid, and it will not keep very long, because by neutralizing the acid you bring back the cream in the condition it was before allowing the bacteria to again grow. Many of these preservatives on the market contain a large percentage of salt and other ingredients which are of little value. One of them I saw contained as much as 50 per cent. salt, and it sold at something like 18 cents per pound, and I would warn you not to buy these powders unless you know what is in them. If the manufacturer places on the package what it contains, well and good.

This word "Formalin" is a trade name, just as much as in the case of pills or patent medicines. I do not know whether it is copyrighted in Canada, but it is copyrighted in the United States, and I see that legal proceedings have been taken against a firm for using the name. "Formalin" is a trade name brought out by a firm in Germany.

A Member : Have you made any experiments to find out at what stage lactic acid bacteria can be destroyed ?

Prof. Harrison : They are spore-forming bacteria. Four minutes at the boiling point (212 degrees) would be necessary to kill the spores of the lactic acid germ, so that it is hopeless to trp and kill it, because you would not keep it boiling long enough. Pasteurization is effected at 165 degrees, and it is only kept at that temperature, momentarily. We can never hope to kill the greater number of injurious forms. A great deal can be done to control the spores by keeping the milk cool.

A Member : I was deeply interested in Prof. Harrison's address, and I think he has given us in science what has already been developed in practice, and showed us that we should look toward the pasteurization of sour cream for the solution of the problem. I think we will get into trouble if we use preservatives in the cream. The laws of England on that point are very strict.

Prof. Harrison : I do not want the gentlemen to go away with the impression that I condemn pasteurization. On the other hand, I am in favor of it, but when you have the double ripening you will not get the same results that you would get where there is only one ripening taking place.

A Member : Would it be necessary if the cream had been fully ripened when the cream is pasteurized, to ripen it again ?

Prof. Harrison : If the ripening was all right, it would not be ; but when we have such a great variety of different flavors from different lots of cream, then your only hope is pasteurization, for that helps to kill this germ and drives off the odors.

THE USE OF ACIDIMETER.

By Frank Herns, Strathroy.

In taking up the subject of the use of acidimeter, I do not pretend to be master of the subject, as there may still be a number of things relating to it which have to be worked out, but if a few points of interest to cheesemakers can be brought out and discussed, I feel that the object of this paper has been attained. The acidimeter has been used under different forms for a number of years, so that it is not really a new thing. So far as I can learn, it was first used as a guide to acidity in cheesemaking, by F. J. Floyd, an English chemist, who carried out some very notable investigations in Cheddar cheese making for the Bath County Society of England, during a period extending over seven years, or from 1891-1898. The form of acid test used by Mr. Floyd is the one now being used by so many makers in both Ontario and Quebec, and has been endorsed by the leading dairy experts of Canada.

Some of our makers do not believe in this test ; some say that it is a good thing for the boss to play with, while others say they would not be without it.

Cheesemaking, as I understand it. is a process of fermentation, not only of lactic acid. but of other ferments.

The acidimeter will measure the amount of acid present at any stage of the process. It does not make the cheese, as so many of us fondly imagined (it requires brains and good judgment for that), but it merely takes the place of the rennet and hot iron test for acidity, and for acidity only. It shows the actual amount of acid present in the milk when setting the vat, but not the physical condition of that milk—that is, its flavor, richness, or germ content, so that we do not know how fast or how slow a vat may develop acidiy under different conditions. It is also known that milk will show different amounts of acid present when first drawn from the cow, supposed to be due to acid salts or natural acidity of the casein, which is not lactic acid ; so that it is not possible to say at what acidity different milks should be renneted in order to work just right. We must also take into consideration the amount of acid introduced by the addition of culture or starter, together with it possible germ content, so that a number of conditions may influence the setting point.

The makers must be guided by the working of the milk from day to day. The rennet test will tell us the susceptibility of milk to certain rennet, but not its actual acidity, yet so far as I have been able to observe, the rennet test in careful hands is about as accurate for setting the vat as the acidimeter, for reasons already given ; still, when the setting point is known from day to day, I prefer getting the setting point with the acidimeter, as temperature of the milk does not need to be taken into account ; it can be done quicker, and less milk is used.

After setting, the development of acidity will depend on how curd is handled, together with its germ content. When the curd is cut, further tests for acidity are then taken from the whey surrounding the cubes or curd. The whey at this stage will usually test about two-thirds the acidity of the milk at setting, or if the milk is set at .2 acid, the whey immediately after cutting would test from .13 to .15. The reason for this is supposed to be that most of the acid, together with the germs which produce lactic acid, are incorporated inside the cubes of curd at the time of coagulation, and so leave the whey surrounding the curd almost free from acid. As the acid is being produced inside the cubes of curd by the action of the germs breaking up the milk sugar into lactic acid. this acid is forced from the inside of the curd along with the moisture, out into the whey surrounding the cubes of curd by the contraction produced by both heat and acid, and so gradually raises the acidity of the whye around the curd in proportion to the rapidity with which it is developed inside the cubes of the curd by the curd taking in fresh sugar from the whey by diffusion. This is my opinion in the stage at which the acidimeter becomes a very valuable guide. We can get the acidity as soon as the curd is cut. and can firm the curd according to the rapidity or slowness of development, shown by the rise in acidity of the whey surrounding the cubes of curd. This is where proper cooking comes in. for with curds that have been cooked too fast so that a tough coating surrounds the cubes, the acid cannot get out along with the moisture. with the result that whey will not rise in acidity as fast as it should had the whey been properly cooked. In taking tests of whey from time to time the curd should be stirred up before taking a sample. because as the acid comes from the curd it will make the lower portion of the whey immediately surrounding the curd show higher acidity than when thoroughly mixed so as to have acid evenly distributed through the whole mass of liquid The milk should be set so that it will take from 2 3-4 to 3 hours from time of setting for the whey surrounding the curd to rise in acidity to nearly the same point as at setting The vat should then be ready to dip.

If whey has been partly run off the vat before ready to dip. from .01 to .02 more acid should be allowed in whey before dipping than if the vat was full. on account of smaller volume of liquor in which curd is lying and also because acid is mixed with

smaller volume. So that with the acidimeter we get the acidity all through the firming process, while with the iron we must wait till curd is firm enough to string. The setting and dipping points can soon be found by the maker at his own factory. For milling it should be accurate, taking the whey draining from curd in sink for the test, for as the acid is still being developed from the sugar still inside the curd while maturing and matting, the whey draining from curd will contain a definite proportion of that acid, so that a test made from this whey should represent the actual acidity of curd. Less chance of error should occur here, as gassy curds do not affect this test ; besides lessening the possibility of error from wrong stringing on the iron. The acidity at this stage should be from .75 to .9. Gassy or slow working curds should be allowed the more.

For salting it is probably the best guide we have yet obtained. I think it has been proven that if curds have been properly handled during making process so that their firmness and moisture content are right and no bad taints appear, a certain amount of acidity at salting will insure a close cheese from 1.15 to 1.30, according to the kind of curd.

After salting, the moisture draining from the curd will show les acidity than before salting. This is probably due to the fact that salt contains lime, which is an alkali, and tends to neutralize some of the acid. But as the lime becomes neutralized by acid, the former acidity returns and gradually increases. It does not seem to be due to extra amount of moisture brought out by salt, as it all comes from the same source, and should contain definite proportion of acid. Sinks should be kept perfectly clean, as any acid conditions of them would very materially affect the test by whey going over them and taking up the acid, thus giving a false test.

So far as I am aware, no other acid test has been found fine enough for cheesemaking. It can be used quickly at the weigh stand to find out if milk be too sour to take in, and it will also show if any acid preservative has been added to the milk to keep it sweet, as the addition of boracic acid and some other preservative will raise the acidity of the milk above normal without it tasting or smelling sour. It is also the best guide to use in making and keeping a pure culture or starter. Some bacteriologists tell us that a culture containing more than .7 of acid is not the best for use in cheesemaking, and by using acid test we are able to handle and control a culture so as to give best results. It can be used by lamplight, but persons who are color blind could not use it in any way. The guide for color should be the first permanent and uniform pink shade (which fades very quickly); and shade deeper than this cannot be obtained from day to day. The burrettes and pipettes should be accurately graduated, and the tests made in god light. The alkaline solution and indicator must be absolutely correct when sent out, and kept so by being airtight until used up, except the small amount in the burrette, and this should be corked tight when not in use.

The possibility of the solution or indicator being sent out of wrong strength is probably the greatest if not the only objection to this test. But whoever makes for sale such solution or indicator should be absolutely sure that they are correct, and when the makers know this has been done and can be done again, I believe this test will be universally adopted, and gradually take the place of the hot iron for cheesemaking, for it is founded on scientific principles ; and although I am aware that its use is not absolutely essential to the making of fine cheese, yet I am convinced huoahrbkbwaterfofi.... tage. By its use the cheesemaker can determine the acidity of the whey, and so decide when to draw this off, and by so doing will secure not only the proper development of acidity but know for a certainty that it is there. It has been proven that the acidity of the whey which drains from the curd when in the sink is a sufficiently accurate guide of to the conditions of the curd before milling and salting, and by securing uniformity in this acidity we will be more able to get uniformity in quality and ripening properties in the cheese. For setting, I believe it will tend to prevent us from ripening the milk too much, for there is no doubt some of us have a tendency to ripen too much, and to

use too much over-ripe starter of poor quality. For cooking it will certainly help us, for the proper cooking of curds and getting them free from too much moisture is the main secret of cheesemaking. Good judgment and common sense must be observed at all times in its use, and enough study and close observation put upon it to get perfectly familiar with handling it ; for there is no doubt the cheesemaker of the future must be fairly well acquainted with the whys and wherefores of his business to be as successful as he would wish to be.

Milk Testing.

The second part of the paper deals with milk testing. It would almost seem unnecessary to take up time with this before this convention, when we remember that there are three Dairy Schools in this Province where dairymen may attend free, and become thoroughly acquainted with the theory and practice of milk testing in all its branches ; but in visiting factories in almost every part of Western Ontario, during the past season, I was somewhat surprised at the very apparent inability of a number of makers and their assistants regarding such an important branch of the dairy business.

Then, we notice that a number of important factories that formerly paid for milk according to its fat content have thrown out the Babcock test and gone back to the pooling system. Now this, to my mind, is a step backward, and we should endeavor to ascertain the cause, and, if possible, prevent it, for I think we must all admit that paying for milk according to fat has a tendency to raise the quality and standard of that furnished by the patrons to any factory.

The trouble appears to us from two sources : First, some of our makers, I am sorry to say, are not careful enough in sampling, and keeping these samples, and then properly testing and reading the per cent. of fat. Lack of knowledge also produces a lot of trouble here. Others do not wish to be bothered with the extra labor, and so discourage the test system as much as possible. Second, then the majority of patrons do not understand the test, with the result that when it varies from one month to the next, or one man's cows test higher than his neighbor's, friction occurs ; add to this a maker who does not understand the theory of milk testing sufficiently to intelligently explain these difficulties to his patrons, or one who does improper testing, we then have a combination that is pretty hard to get in line again.

It seems to me that a man who is being paid for his milk by the test system should be familiar enough with it to know its benefits, and then he can speak intelligently about it, and know when he is getting justice. If the one who tests milk thoroughly understands his business, he will not be afraid to put a low test to any patron for fear he has made a mistake. There is no necessity for mistakes.

In the State of Wisconsin, they have passed a law to guard against the misuse or abuse of the Babcock tests to the effect that any person found guilty of intentionally under-reading or over-reading the test when paying for milk by the same shall be liable to a fine of not less than $25 nor more than $100, in default of paying, imprisonment in the county jail for from thirty to sixty days. This same law also holds good for any manufacturers sending out glassware for the test that is not properly graduated.

It seems to me that if we had such a law, it would do away with a lot of complaints among the patrons about not getting justice. Then I think all makers should be perfectly familiar with the use of the Quevenne lactometer, in order to know if any adulteration is being practiced by the patrons. Of course, if all factories paid for milk by the test system, it would do away with this nuisance of watering and skimming milk.

In order to raise the standard of milk, not the least important is the testing of milk for flavor and taints. This can be done by the curd and fermentation tests. The patrons should be familiar with this also, and be able to judge along with the maker when a sample is wrong, and then try and find out the trouble. Some way should be found to educate the patrons to the use of the Babcock test and the fermentation test, so

that they will know for themselves something about these things and not be left in the dark regarding what is just as important to them as to the maker. To speak of a few details of milk testing. The composite sample would be better taken with a milk thief or Scrovell sampling tube, so that a normal part of the milk is taken. A round can with flat bottom would be required. I do not say that good practical results cannot be obtained with the ounce dipper, but with the tube we get a sample exactly in proportion to the amount of milk poured in the can.

Makers who take in sour milk need not be surprised if the samples are thick before testing day. It is hard to get a preservative to keep such milk. Samples should be kept as cool and as free from light as possible. Far less trouble will occur if boxes are constructed to hold as many bottles as can conveniently be carried, and these boxes taken to a cool, dark room each day during the hot weather. It will pay for the extra work by the better condition of samples when coming to test.

Temperature has a great deal to do with a proper test, and good results cannot be obtained with acid that is very much too strong or too weak. A centrifuge should be kept up to speed, and if a turbine is used, a speed indicator should be applied.

The one who tests should know how to sample different kinds of milk, such as sour, frozen, and churned milks ; how to test cream, skim milk, buttermilk and whey, cheese and butter ; why the tests are burned, why they are pale in color, why they are too low, why we use a 17.6 c. c. in volume, and 18 grains in weight. Also at what temperature water should be added, etc.; how to get speed of machines, to calibrate glassware, to use the lactometer in conjunction with Babcock, how to find the solids not fat, the total solids, the per cent. of water, the per cent. of pure milk, and per cent. water added in case of adulterated samples. He should have some knowledge of dairy chemistry, and the metric system of weights and measures as applied to milk testing, and numerous other things. And with all, perfect accuracy, always bearing in mind that testing of milk and its products does not merely consist in adding some fat and acid together and whirling in centrifuge regardless of results.

A Member : One of the greatest things in the use of the acidimeter is the comparative good results one maker gets compared with another. In using the rennet test we cannot compare our work, but with the acidimeter it is so accurate that if one maker is dipping at such a stage of acidity he can compare results with another maker, and they can both learn from one another. In the old system when we compared results we did not know where we were at. For instance, last summer we went astray in the factory. We were setting with the rennet at 2.4 degrees, and another factory set at 2.8 degrees. I think the acidimeter will give us better results.

Mr. Herns : I wish to take exception to the gentleman who has just spoken with regard to the comparative results. You remember that I mentioned in the way it depended entirely on the germ contents and acid contents of the culture, what acidity that milk should have to be set at. I think from the experience I have had with it that the milk set in different factories has not the same acidity.

A Member : You have no way of determining the germ contents of the milk outside the bacteriological analysis ?

Mr. Herns : I admit that we have no way of getting the germ contents of the milk, but different milks will contain different quantities of germs, and different starters for cultures will have different quantities of germs. Therefore, if you have milk in which you introduce any starter whatever, and set that milk with 2 1-10 degrees of acidity, you can take that very same milk and introduce new milk and a pure culture, and you will find that if you allow them to ripen at the 2 1-10 degrees you will have a big difference in the working of that vat. The milk which contains the culture would have to be set at a lower acidity than the milk which contains no culture.

Mr. Barr : I would like to see a good live discussion on the use of the acidimeter. During the past season I was criticized pretty strongly on this question, and I was told I would get my hair combed this year ; but I do not think they will comb it as much

as they expected to at the beginning of the season. When we commenced using the acidimeter we had good results. I knew it was a very delicate test, and that the majority of the makers would come to the conclusion that nobody could use it. We had considerable fault found with it, but I am satisfied that the makers who have continued using it, and used it right, are perfectly satisfied that they have never had anything that has given as good satisfaction. The instructors are quite satisfied it is all right, and if we are not making it clear enough to you, this is the time to discuss the matter. Some of our best makers have told me that if they had to do without the acidimeter they would quit making cheese.

A Member: I think that some of the mistakes we encountered last season were along about the salting period of the process, and I would like to ask if there is not something in connection with the condition of the curd more particularly than the acid which affects the salting point?

Mr. Herns: Referring to the condition of the curd at salting. I think the acidity of the curd at salting depends to a great extent on the moisture of the curd. So far as I have been able to see, the more moisture that has been left in the curd, of course, the more sugar there will be in that curd, and consequently the more acidity will have to be developed before the salt is added in order to have that curd in the condition in which you want it to remain in the curing room. Now, I think the moisture contents of the curd has more to do with the salting—except, of course, taint. The moisture contains all the normal curd at the time it is salted, and has more to do with the condition of the curd than anything else, except, of course, acidity. I think if we were to cook the curds properly there would be less possibility of having trouble in the curing room, and less acidity at the time of salting will be required on a curd properly cooked and stirred reasonably dry.

A Member: Is there any way of finding out whether the alkali is weak or not?

Mr. Herns: You should not let it get weak. If you allow the air to get to the alkali it will weaken it; it must be kept airtight, and that can be done by using a little apparatus that is sent out with the acidimeter.

Mr. Brown: I would like to ask you if there is any difference in using a starter? Sometimes you can see it at .2 per cent., and at other factories I have seen it used at .1. I would like to know if that has anything to do with the cheese?

Prof. Harrison: The object in using the acid starter or cuture is to supply the milk with a large number of acid-producing germs, and when you get .6, .7, or .8 per cent. of acid in the starter the lactic acid germs begin to get weak; they are beginning to be killed by the amount of acidity which they are forming from the milk sugar. Probably the starter is at the height of its vigor when at about .6; beyond that it is going down hill. You should use the germ when it is at its most vigorous condition, and I would not advise going over .6.

JUDGING CHEESE.

By R. M. Ballantyne, Montreal, Que.

The first part of the afternoon session was held at the Exhibition Hall, where the cheese and butter were displayed. The room was so crowded that the judges had to stand on the counters in order to make their remarks.

After about five hours' work, and taking the greatest pains to make certain, we were giving the prizes to the best cheese of the exhibition. The results of the cheese awards is as follows:

Sweepstakes—R. H. Green, Trowbridge, 99 points (honors).

September White—1, R. H. Green, Trowbridge, 99 points; 2, W. J. Goodwin, Brussels, 98 points; 3, A. C. Gracey, Dorchester, 97½ points.

October White—1, W. Stacey, Fullarton, 98 points ; 2, J. S. Issard, Paisley, 97½ points ; 3, R. H. Green, Trowbridge, 97 points.

September Colored—1, Frank Boyes, Northwood, 97 points ; 2, George A. Boyes, Putnam, 96½ points ; 3, J. D. Doan, New Sarum, 96 points.

October Colored—1, Hugh Wilson, Keyser, 98½ points ; 2, R. Cuddy, Woodstock, 97 points ; 3, John Francis, Eden, 96½ points.

I know that I am supported by my fellow judge in saying to you that the cheese on exhibition are an excellent lot. (Applause.) I do not believe the same number of cheese from the same number of factories can be got together in any other part of Canada to-day. (Applause.) Since I have gone East I have learned to appreciate many things that are good in the cheese that are made in this section of the country. I have learned to appreciate points that are general here ; general excellencies that are reversed in the country East. That is the finish, as you see it on this cheese. That is one of the points of excellence that is not so in the East. In the East there is not the same attention paid to handsome exterior, and in this section of the country there is more solid boring cheese which is not so general in the East. I would also say that your September, October, and November cheese excel anything made on this continent. I believe I am absolutely correct in saying that, and I believe the men who get your cheese in England support me in that. (Tremendous applause.) There is a solidity, a finish, and a flavor that is not gneral in other sections as it is general to this section. But there are things in connection with this section that I believe are not just as good as they might be. Every man who handles cheese from the Ingersoll section knows that your June, July, and August cheese are dry cheese. They have through it the nature of skimmed cheese, as compared with the Brockville section. Every man who sees them says they are too dry, and they are not what is wanted, but the finish, and style, and appearance is good. You get better boxes in this country than we get East. They seem stronger and better, and these things help to bring you a price for your goods that you would not otherwise get. I believe if you made cheese as untidy as some of these Eastern sections, you would have to take a price equivalent to Quebec. The excellence of your Mays are responsible for the price you get. Why is it that you get such a good price for the May cheese ? The common practice of this country is to use more extract to retain the large percentage of moisture, and thus use a less quantity of salt, so that the moisture still remains in the cheese and the cheese will cure rapidly. The cheese from this section gives the very best satisfaction in the spring, and when you get past the spring they do not do so. You begin at that time to use a normal quantity of extract and a larger quantity of salt, and make a solid cheese. In the fall of the year the extra quantity of fat in the cheese seems to overcome this, so that the lower temperature of the atmosphere helps to some extent. I believe that when you have men like Mr. Barr working and finding out how to overcome your difficulties, you ought to be able to make your summer cheese almost as good as the spring and fall.

Mr MacLaren : Would you advocate the May process right along ?

Mr. Ballantyne : No, I would not. When you get east you get a richer quality of milk, and when you get into Quebec you will find that in the summer time the milk will test 4 per cent. generally throughout the country, and all of you know in this section of the country milk that will test 4 per cent. in June is not known of. In the Eastern section they are in the habit of running the temperature to 104 degrees to get enough solidity in their cheese. I do not know whether you can reverse that, and drop your temperature down to 96 degrees and accomplish the same result they secure by running their temperature up The men who are in a position to make these investigations should make them, and they should be able to put you on the way to make cheese that are not so solid and stiff, and almost as dry as a skimmed cheese.

Mr. Eagle : We make good cheese in May and in the fall. Can you tell us how to do better the rest of the year ?

Mr. Ballantyne : I think the men who are making these investigations should set to work and prove to you the method by which you can change.

Mr. MacLaren : Will Mr. Barr tell us this afternoon ?

Mr. Ballantyne : It is during the hot months of the summer that your cheese are dry and stiff, and almost like skimmed cheese. I think possibly that has come about because of the fact that it has been the habit of salesmen to hold cheese in the factory. There is not the same general selling once a week that there is in the East. In the East every salesman sells his cheese once a week.

Mr. Steinhoff : Do you think the milk is richer in the East than in the West ?

Mr. Ballantyne : I believe that is partly the cause, but I believe you can learn to make cheese that will not have a stiff, skimmed character.

Mr. MacLaren : If they make the cheese properly and ship promptly, it would be much better.

Mr. Ballantyne : I believe if you get Mr. Barr to talk on that to these people, they will be able to still improve.

A Member : Just as soon as June comes on, the makers start to use more salt.

Mr. Ballantyne : Yes, they use more salt just the moment they get to June, when they are liable to have hot weather.

Mr. Muir : Do you not think this hard cheese is caused principally by salt being used ?

Mr. Ballantyne : Yes, I think so.

Mr. MacLaren : Suppose they do not use that salt, the cheese will go off flavor and you will not be able to get anything for the cheese.

Mr. Barr : When we strike the month of June we get poorer milk than any time of the year. You do not want to leave that point out, and the necessary stirring of the curd makes the cheese dryer.

Mr. Muir : You get less curd for a given quantity of milk. When you have a gassy curd, should you still not use less salt on that particular kind of curd ?

Mr Barr : Some of the western people think I was not saying just as much in favor of western cheese. Mr. Ballantyne is giving us some good pointers in regard to our summer cheese and we will do what we can to overcome these three months. We are all right the rest of the time, and we will try and fix up these three months.

Mr. MacLaren : How will you fix the salesmen ?

Mr. Barr : I think the best way is to appoint the men that make the cheese the salesmen.

Mr. Muir : The best way is to make the cheese right, and they will sell themselves.

JUDGING BUTTER.

By P. W. McLagan, Montreal, Que.

The prizes for butter were awarded as follows:

Winter Creamery Boxes.—1, Wm. M. Waddell, Kerwood, 96 points ; 2, W. A. McKay, Courtice, 94 points ; 3, W. A. Bothwell, Hickson, 92½ points.

Winter Prints.—W. A. Bothwell, Hickson, 95 points; 2, W. A. McKay, Courtice, 93 points ; 3, Wm. M. Waddell, Kerwood, 92 points.

October Butter, Boxes.—1, Jas. Bristow, St. Thomas, 96½ points ; 2, G. Balkwill, Lafontaine, 93 points ; 3, John McQuaker, Owen Sound, 90½ points.

Alderney Butter color.—1, Wm. M. Waddell, Kerwood ; 2, G. M. McKenzie, Ingersoll.

I will just take up two or three minutes speaking about the general appearance of the butter. I am not able to speak so highly on the butter exhibit as Mr. Ballantyne has been able to do in regard to the cheese, but I may say that I have been rather

agreeably disappointed in the quality of the winter-made creamery made in boxes. In samples of it we see down there in the summer time have a very strong flavor, which is objectionable, and that is something I looked for here, and I am glad to say that the exhibit of winter butter, on the whole, is very good; particularly the three prize samples. There are some very bad specimens amongst it. The second prize butter has got too high a color, but we did not take any notice of that, because it was well mixed, and we gave it the prize, but from the point of view of an exporter the color is altogether too high. We want a pale butter for export purposes.

Now, turning to the quality of the October butter. I am bound to say it is utterly bad. Some of it may have been badly made to begin with, but it has been badly kept, and we did not think we were doing the right thing in giving a prize for it, because the flavor was not such as to warrant it receiving a prize. I do not think any of the butters here could have been called fancy butters at any time. The worst fault I found was in the boxes. Most of them are poor boxes. They are too frail; the wood is altogether too thin, and some of them are very bad indeed. We abominate Western Canadian boxes. If you take any one of these boxes and throw it on the floor it will split, and some of the boxes are not properly filled. They are altogether too high. There is one box that is properly filled. It is filled to the brim, and still there is 56 lbs. in it, but I do not recommend the box because the wood is too thin. It should be three-fourths of an inch in thickness, but the shape is all right. We want our boxes as near a cube as possible.

Another point I wish to speak on is that some of these boxes contain salt above the paper. There should be no salt at all on top of the paper. Most of the papers used are very good. They weigh about 45 lbs. to the ream, and in some cases they have double paper, and that is a very good thing. The papers are generally neatly folded over the butter, and that is also a good point. The points in which you should endeavor to improve are flavor, packing, and boxes.

Mr. Steinhoff: Who are the manufacturers of the best boxes?

Mr. McLagan: The best boxes we get in Montreal are made away down in the country. They are quite three quarters of an inch in thickness, and are nailed together, and will stand any amount of rough usage. The Rutherford boxes are not quite thick enough.

A Member: What do the strong boxes cost?

Mr. McLagan: Not more than 2 or 3 cents extra.

Mr. McLaren: They are heavier. What about the freight?

Mr. McLagan: It does not amount to anything compared with the gain.

A Member: How is October butter?

A.: It is very good, but it is very stale; the body and texture in the winter butter lacking.

Mr. Johnston, by request of the Chairman, auctioned off the cheese and butter, and it all sold at very good prices, the cheese selling exceptionally well.

DEFECTS OF CANADIAN BUTTER.

By P. W. McLagan, Montreal, Que.

I have been asked to speak to you of the defects of Canadian butter from an exporter's point of view. I have to confess that they are numerous, but were an English dealer in high-class butter asked to enumerate them I fear he would say "Their name is legion." I have been introduced by importing friends over the water to their customers as a shipper of Canadian butter, and the comment has been something like this: "Oh, yes; not bad stuff; makes a good second cut." It is not pleasant to be

told such a thing, yet one cannot quarrel with it; for, if not wholly true, it has in it a good deal more truth than falsehood. I think I am within the mark when I say that not more than 25 per cent. of our whole butter production is fit to be classed as strictly fancy in quality.

Probably the defect we hear of in loudest tones from abroad is want of keeping quality. I do not think it is our worst fault from a strictly export point of view, for from that point of view I think we are lacking most in flavor and aroma; but complaints have been on the whole most emphatic in the matter of keeping quality, and for the reason that in times past Canadian grass butters have been bought very largely on speculative lines, to be stored on this side or the other, in view of what used to be the certain advance in prices towards winter, and the out-turn quality has been too often exceedingly disappointing. It may not have been always or altogether the fault of the butter, but as a rule it got the blame, and consequent bad character. Improved storage and transportation facilities have in late years helped to some extent to remove he stigma, and more recently the use of boracic preservatives have been of great service. I strongly advocate the use of them, even where salt is used. I have had occasion to remark cases where unsalted butter, with 1-2 per cent. of a boracic preservative worked in, had kept better than butter salted with 3 per cent. of salt, but without preservatives. Further improvement of storage and transportation facilities, as well as generally improved methods of making, should speedily rid us entirely of a bad keeping reputation, for assuredly we have in this country all the natural elements for producing butter unexcelled on any point.

Along with, and as a part of the general complaint of want of keeping quality, we have in recent years been roundly abused for the development of mould on the surface of our butters. This is chiefly due to the use of impure parchment paper, and its improper manipulation before being placed around the butter. It is not possible to take too great pains to see that the parchment bought is the best and purest that money can buy. Compared with purity and perfect quality the element of cost is not even a secondary consideration. Mould germs are also inevitably disseminated by he presence of mouldy, moisture-soaked, decaying wood in the factory buildings, and by dirt and decaying matter in any form. So it is most important that everything in and about a factory should be in a perfectly clean and sound condition. But there are other defective points of quality which are more important than mere keeping quality. The merely speculative element in the trade is passing away, with the development of the butter industry in Antipodean countries, Australia, New Zealand, and the Argentine Republic, whose products reach the British market in winter, and the inducement and need for buying and holding Canadian and other Northern Hemisphere butters for winter use has passed. In future, therefore, we must look for an immediate consumptive demand for the disposal of our butters, and make and prepare it accordingly. For this purpose, and from the strictly export point of view, I think our chief weakness lies in flavor and aroma—the high, pure, creamy flavor which is produced in the greatest perfection along with large quantity, by the Danes. Irregularity in a dozen forms is another fatal defect in the bulk of our butters—irregularity not only between one creamery and another, but in the product of the same creamery. Irregularity of flavor, irregularity of color, of salting, of packing, of weight, of the package itself, are amongst the most conspicuous forms of irregularity which now characterize the bulk of Canadian butter. There is also the irregularity which arises from the difference of opinion, or capacity to judge of quality by the different shippers, whereby various samples of Canadian butter are thrown on the British market, all under the designation of Finest Canadian. Of course, the remedy for this last difficulty, for which the maker is only indirectly responsible, would be a system of official grading of qualities, such as has been established in New Zealand, but I think that is a consummation to be desired when we get around to it. But the most important task in the meantime is the improvement of the intrinsic quality.

Not being an expert butter maker, I do not pretend to tell you in detail how to do this, but as a shipper I may indica e what characteristics are most wanted by our British cousin and customer.

Flavor. The flavor and aroma, as I have said, should be pure, rich, and creamy, with an entire absence, if possible, of any sectional element at all—anything that may proclaim the section or country of origin. Herein, of course, comes up the question of careful and intelligent feeding of the cows, as well as care in the manipulation of the milk and cream. It also tempts me to refer to the system of gathering cream in place of milk. That is too large a question to enlarge upon here, but I would say that all experience shows that unless the cream be gathered daily the resulting butter will always be disappointing in flavor. Pasteurizing may help to some extent, but you will never get fancy flavored butter out of cream gathered only every two or three days.

Color. The color should not be higher than a pale straw—better to err on the pal- than the color side.

Salt. Under this head there are three great classes of butter wanted in Great Britain There is a considerable and slowly growing demand for absolutely saltless butter. Then there is a large demand for a mild butter, leaving no more than a trace of salt on the palate—salted not more than 2 per cen . And, which is still the largest trade, there is full salted butter containing not more than 3 to 3 1-2 per cent. of salt. Now, there is no point in which irregularity in Canadian butter is more pronounced than in the degree of salty flavor. A maker should carefully decide whether he wishes to produce a mild or full salted butter, then be rigidly careful to work in no more than 2 per cent. of salt in the one case, and not less than 3 per cent., nor at the outside more than 4 per cent in the other. With all three classes mentioned (saltless, mild, and full salted), the best boracic preservative obtainable should be added to he extent of 1-2 per cent., not more. It greatly enhances the keeping quality.

Weight in Each Package. This is also an important matter, which is not yet as fully recognized as it should be, though there are more sinners in regard to it in Quebec than in Ontario. The contents of every box of butter should be such as will weigh out to the buyer 56 pounds full weight, that is to say, 56 1-2 to 57 lbs. should be weighed and packed into the box.

Packing. The packing should be made as solid as possible, as near to a cube in shape as possible, and made as neat and smooth on the top as a slab of polished marble.

Packages. The packages we use are not strong enough, and here Western Canada is often a worse sinner than Quebec. The wood should not be less than three-fourths of an inch in thickness, and the parts should be put together in the strongest manner the skill of a carpenter can devise. It is poor economy to save a cent or two in the cost of a box at the expense of strength.

Just a word or two now on the question of organization. The work in this direction done by our different Government agencies is very much to be commended, particularly their work in the matter of the establishment of educational agencies, and in the initiation and development of refrigerated transportation. But, I believe, much more must be done if we are to keep in line with those countries with which we have to compete for place and price before the British buyer of butter. Of course, we all know that Denmark is the most thoroughly organized butter producing country in the world, where they are organized to the extent of having the cows come in at different times all the year round, by which means they are able to produce a remarkable uniformity of quality all through the year, even from an analytical point of view. And as a result they lead the world in price by 2 cents to 4 cents per pound. Of course, Denmark covers but a small land area, and so it lends itself to organization and control much better than the large and scattered territory we have in Canada, yet I am certain that the problem is not beyond the power of Canadian intelligence and energy. Probably the two countries producing butter at the same period in the year that we do, which

are at present, and likely to continue t be, our most serious competitors, are Ireland and Russia. These we shall have to grapple with and vanquish ere we need think of tackling the Danes' fancy butter. Russia is not well organized as yet, and does not produce as fine an average of quality as in our creamery butter, but the Russian Government is spending money freely in education and organization. Large numbers of Danish makers and instructors have been scattered throughout the butter-producing regions, and a refrigerator train service has been established to carry the goods to the seaboard, whence refrigerator steamers have been provided to carry them to Great Britain. It is safe to say that Russia is in the butter business to stay, and that her production will rapidly improve in quality in the years to come. Ireland has in recent years made great strides in butter production, particularly in the improvement of quality, by the introduction of the creamery system of making, and is in process of being very thoroughly organized, under the direction of the Irish Government. Last year it initiated a system which, I think, might be profitably copied in Canada with regard to both cheese and butter factories, viz., that of licensing factories that come up to a certain standard of equipment and quality of product, and that certificating makers, who pass certain examinations after a period of probationary experience. I will read to you the conditions laid down as stated in a circular issued to butter manufacturers in Ireland a year ago :

With a view to encourage and assist improvement in the very important work of the management of creameries the Department of Agriculture have decided to take the following steps :

(1) To establish a register of well-managed creameries in Ireland.

(2) To make provision during the session at the Albert Agricultural College, Glasnevin, for courses of dairy technology, with special reference to creamery management.

(3) To award a certificate of competency to creamery managers under prescribed conditions.

(4) To institute a series of surprise butter competitions.

I.—REGISTRATION OF CREAMERIES.

The Department are prepared to consider applications for the registration of creameries from managers who desire to have their creameries and management recognized by the Department as efficient, or who are in a position to train one or more pupils.

Application for apprentices or pupils for admission to the examination for the Department's creamery manager's certificate will be considered only in the case of those coming from registered creameries.

The conditions under which registration will be granted are :

(1) That the manager is capable.

(2) That strict cleanliness and order are manifest everywhere—around the creamery, in the creamery, and in the persons of manager, employees, and pupils.

(3) That apprentices and pupils receive efficient training and instruction.

(4) That there is a proper system of bookkeeping and business methods.

(5) That the equipment is sufficient.

(6) That premises and methods are at all times open to inspection by the Department.

(7) That defects indicated by the Department's Inspector be remedied.

(8) That the creamery is entered for the Department's surprise butter competition.

In considering applications for registration the Department will assign much more weight ot cleanliness and order, and the consequent production of a high-class butter and an easy working of the creamery, than to elaborate and expensive equipment, the provision of which is not always within the manager's power. At the same time, due weight will be given to the provision of a complete modern equipment.

All creameries in Ireland, whether co-operative, joint stock, or private, are eligible for registration.

Applications will be dealt with as speedily as possible ; but the Department do not guarantee a decision before the close of 1903.

The register will be subject to annual revision, and will be published annually by the Department.

The Department may, without assigning any reason, refuse to inspect or to register any creamery, and in all cases of dispute their decision shall be final.

CREAMERY MANAGER'S CERTIFICATE.

It is proposed to hold annually in March an examination for this certificate. The subjects of the examination are given below. The first examination will take place in 1904. Due notice of time and place will be given in the agricultural press.

To these examinations will be admitted :

(a) Persons who during the season preceding the examination have managed a registered creamery to the satisfaction of the Department.

(b) Apprentices and pupils who for one whole season have worked in a registered creamery, and who furnish a satisfactory certificate from the manager.

(A season's work in any creamery will be recognized in the case of apprentices and pupils attending the examination in March, 1904. The concession will not extend to future years.)

(c) Students who have attended the full winter course for creamery managers at the Albert Agricultural College, Glasnevin, and have there acquitted themselves satisfactorily.

To the successful candidates of Class (a) will be granted a full certificate, while to those of the other classes will be granted a provisional certificate, which will be exchanged for a full one after the holder has, to the satisfaction of the Department, managed a registered creamery for at least one whole season.

The certificate may be withdrawn if, in the opinion of the Department, the holder, at any subsequent period, fails in any respect to maintain a satisfactory standard of excellence in the management of the creamery under his care.

Candidates must be at least twenty years of age on the first day of October previous to the examination.

Application for admission to the examination must be made not later than 31st December on Form A-137, to be obtained from the Department, and must be accompanied by a deposit of one pound, which will be returned if the candidate presents himself for examination.

I cannot but think that this system, modified to suit local conditions, would be of great benefit to the trade in Canada. The license fee necessarily attached to such a system would provide the means, and give the right to institute a much more thorough and close inspection than now obtains. It would tend to discourage the establishment of small and badly equipped factories, which are a positive curse to the dairy manufacturing business in Quebec. By restricting the number of licenses to a given area it would discourage the overcrowding of factories, which is another curse to the trade, would give a competent maker a standing, and security in his business he does not be placed in the hands of a certificated maker. This and the possession of a certificate more felt also in Quebec, perhaps, than in Ontario. A licensed factory should only now possess, and probably an increase of remuneration. Of course, both license and certificate would be liable to suspension or cancellation for failure to live up to a certain standard of conditions, equipment, and quality of production. I feel sure that the elaboration and adoption of some such system as this would speedily produce a body of export butter and cheese makers and factories such as could be excelled in no country in the world, and equalled in few. It would give encouragement and a certain amount of security to proprietors of factories to erect larger and better buildings with perfect equipment. And the resulting product would be such as could not be beaten in quality and price anywhere, for our raw material, both in men or milk, cannot be beaten anywhere.

THE BEST METHODS OF CARING FOR, DELIVERING, AND DETERMINING THE VALUE OF CREAM.

By J. A. McFeeters, O.A.C., Guelph.

Success in the care of cream may be said to hinge on two pivots: First, keeping the surroundings and utensils which come in contact with it free from, not necessarily only objectionable odors, but pronounced odors of every description. Secondly, the maintenance of a low temperature. Many people seem to have the idea that so long as milk or cream does not come in direct contact with anything really unpleasant or offensive it should "pan" out all right. As a matter of fact, however, any pronounced or decided flavors which are foreign to milk, cream, or butter, even though they may be pleasant in themselves, are decidedly objectionable from a dairyman's and consumer's point of view. Most of us are able to take care of a piece of fish occasionally, but who cares to recognize fish in his fruit, apple or pumpkin pie, or butter?

There seems to be a diversity of opinion among authorities as to the susceptibility of dairy products to foreign flavors when brought in close contact with them. This gives rise to the question: Where should cream be held while in the hands of the patron? It would be useless to recommend special provisions involving any great expenditure on the part of the average patron, who is not making a specialty of dairying. We must, therefore, accept the best available conditions and make the most of them.

From observations made of our farm homes, I am inclined to believe that the cellar, if clean and well ventilated at nights, is possibly the best place to store the cream while holding it. There are, of course, exceptions to this rule, but in general it will apply. There is no doubt that unwholesome surroundings are responsible to no small extent for poor flavored butter, but the question of temperature plays a more important part in the manufacture of a choice article. Is it going too far to declare it quite within the limits of possibility to raise the flavor score of butter four points by thoroughly cooling the cream immediately after separating? Two suitable vessels should be used, thus allowing the fresh skimming to be kept separate until the following milking time, which permits ample time for cooling and airing before mixing the fresh cream with that on hand. It is well to have some definite standard for this work, as cool may be said to be a relative term. What one considered cool another might not.

It is a fact to be regretted that no regard is paid by most of the factory managers to the temperature of the cream as found by the haulers. If our collectors were required to carefully note and record the temperature of each lot of cream, and some standard, say, 60 degrees F., were adopted, there would be a marked improvement in the quality of the gathered cream butter of Western Ontario. These readings could readily be taken if a thermometer having a red-colored medium were used.

I am hopeful that the ingenuity of some of our good Yankee cousins, will place at our command an automatic device, which, when coupled with a thermometer having the bulb extending below the cream line, will sound a vigorous alarm when the temperature of the cream is allowed to go above, say, 58 or 60 degrees F.

To a dairyman the question of temperature may well be likened to fire, in general,—while kept under control it does us good service, but it is capable of wholesale destriction if given unlimited bounds.

So far as the delivery of cream is concerned there is little to be said. The use of large insulated tanks is steadily gaining in popularity. In factories where both tanks and jacketed cans are used, the tank cream frequently comes in four degrees lower than that delivered in cans. This, of course, would be during our warmest weather. In spring, and fall there would be practically no difference in the temperature. The cans afford an opportunity of selecting or grading the cream to some extent. This sometimes proves of value in locating troublesome flavors.

Under circumstances where the delivery reaches the factory before the heat of the day, ordinary small cans answer very well.

A set of cans of a suitable size to hold the cream supply of each patron, would in many ways be an advantage. The maker would then be brought in direct contact with the cream produced by each patron, and special attention could be given to those who appear careless and indifferent. The responsibility of masuring or weighing and sampling would then rightly fall on the maker. On the other hand, there would be the objections of increased expenditure for outfit, extra labor to wash the cans, and a more bulky load for a hauler to handle.

However, the means of delivery is of much less importance than the frequency with which the collections are made. It is scarcely necessary to say that during the warm summer months it is advisable to make at least three collections per week. It would be well for the factories whose custom it has been to cover the territory only twice a week to consider the advisability of making more frequent collections. The cost per pound of butter would be slightly greater, but it is safe to say that in many cases a third collection of the cream during the week would result in enhancing the value of the butter from 1-2 to 1 cent per pound.

In discussing this last point, "The proper method of determining the value of cream," there is likely to be some difference of opinion.

In the text book, "Testing Milk and its Products," on page two, the following statement is made: "While the oil test is capable of showing a difference between rich and poor cream, it cannot, according to investigations conducted at Wisconsin Station, make strictly accurate distinctions between different gardes of rich and poor cream. As a result, perfect justice cannot be done to different patrons of creameries, where payments for cream delivered are made on the basis of the oil test." A strong statement, but quite within the mark.

To my mind the strongest objection to the oil test is the difficulty experienced in obtaining a satisfactory reading from sweet cream. The readings from sweet cream are not only as a rule indistinct, but usually the test is lower. "Hoard's Dairyman," in discussing this question in the issue of October 17th, states: "As ripened cream always churns more exhaustively than sweet cream, except at a very low temperature, it follows that under ordinary conditions the oil test churn would not give as high a test with sweet cream as with sour or ripened cream."

Unfortunately large numbers of creamery patrons in Western Ontario are quite decided in their belief that the riper the cream the higher the test, and as a result we find the fresh cream held back and allowed to ripen until the next visit of the hauler.

This, no doubt, is responsible in no small measure for the large quantities of strong, sour, acidity butter placed upon the market.

In the face of these conditions, where we retain the adoption of a system of testing which places a premium on sour cream, how is it possible to raise the butter standard of Canada? Is it any wonder that we find a strong commercial prejudice against our western gathered cream butter? If the butter-men here assembled at this convention would unanimously resolve to acquaint themselves with the relative merits of the two methods of testing cream, and do what they can to secure the general adoption of the Babcock method, I am satisfied a very marked improvement would be found in the quality of our western butter.

In further support of what has already been said, let us note the following extract from that excellent modern work, "Canadian Dairying," by Prof. Dean, of the Ontario Agriculural College:

"The oil test may not be considered a very reliable test for cream, and a butter-maker has to do a good deal of guessing to make his oil tests and churn results agree. The Babcock test for determining the fat in the cream is a much more accurate test, and should be introduced into cream-gathering creameries as rapidly as possible. In order to overome the difficulty of carrying scales the cream may be

measured as for the oil test and the weight of cream may be calculated by using the factor 4.1 to convert the inches of cream into pounds; e.g., a patron has 10 creamery inches, 10x4.1—41 pounds of cream. If this test 22 per cent. fat, he is credited with 9.02 pounds of fat." In the northern and eastern section of Western Ontario there are seven cream-gathering factories using the Babcock test, with very satisfactory results. Three of this number discarded the oil test during the season of 1903. I expect to find four or five Babcock converts during 1904.

It would certainly not be wise for creamery-men to jump at the conclusion that the Babcock will banish all their difficulties, and decide to adopt the method without first clarly explaining to their patrons the principles of the two methods, and the advantages of the Babcock over the old method. This might be done either through a patrons' meeting or a circular letter. In brief, the advantages of the modern method of testing cream are :

1. Accuracy. The Babcock is definite to within one-half of 1 per cent.

2. A slight premium is placed on sweet cream.

3. A great saving of time and labor, both in testing and making out monthly statements.

4. An apparent less variation in the cream tests.

5. Having a Babcock testing outfit in the factory affords a means of checking a loss of fat in the buttermilk, which in some cases is very great.

The chief objections to the system are :

1. The time required to test the samples at the end of the month.

2. The difficulty of checking the measuring or weighing and sampling of the hauler.

3. The small expense of the acid used.

Time will not permit a full discussion of the working details of this system of testing Full information and instructions along these lines may be obtained from the dairy text books quoted, or from either of our Dairy Schools.

The Chairman : All of you who were here yesterday remember that I particularly thanked the Minister of Agriculture of the Province of Ontario for the able assistance he had given the dairymen of this Province. I now have very much pleasure in calling upon him to address you.

ADDRESS.

By Hon. John Dryden, Toronto.

I should like to congratulate you most heartily on the interest that appears to be manifested in this convention, and also on the large attendance that you have had at all of the sessions so far. It pleases me to see the increase of enthusiasm among the dairymen of Western Ontario. I have talked to several since I have come here, and I talked to several on my way up, and I found the same enthusiastic spirit manifested everywhere.

I am glad to be with you on this occasion, to encourage you in the good work which you had under way last year. I think that will do more than anything else we have done before to perfect this great product. Little did I expect, when two years ago I ventured to suggest that it would be possible to inaugurate somewhat of a new system of instruction, that so soon it would go into operation, nor did I think the people generally would be so intensely interested in it, and that the cheesemakers generally would be so willing to offer their money in order to carry this scheme out. I know of nothing which my Department has undertaken in recent years which is more important, and which I am bound to say will have more far-reaching results within the next two or three years. I find that the people both east and west are becoming aroused. There seems to be new life displayed everywhere. They are discovering the mistakes made in the past ; discovering the weak points in the system,

and it seems to me just now that the time is ripe for a general improvement all along the line. One of the speakers this morning said that we had better let well enough alone, and stay where we are in the cheese business; but I want to say that there is better cheese sold in England than the cheese that comes from Canada, and I want to say that I know that superior article receives a better price than Canadian cheese. and so far as I am concerned I shall not be content until we have pushed a little further ahead, and reached a little nearer the top than we have ever been before. (Loud applause.)

I do not propose to let you stand still. We must all come together and move forward as one body. Therefore, I say we should unite the Directors of this Association and work along the same lines as the Directors of the Eastern Association. Our Chief Instructors of the East and the West ought to come together and understand each other, and go exactly in the same way, and there is no other possible way that they can do the best service for the country at large. Thus, our sub-instructors ought to be working along the same lines. We have three dairy schools, and it will not do for one of these schools to be pursuing a different line of instruction from the others. They must all work together, and the same thing applies to the Department of Agriculture. You have said that the Department at Ottawa, and the Department at Toronto gave you assistance. You should all work together along the same line and towards the same end.

You will all agree with me when I say that we want no inferior products in this country. There is no place for it. Nobody wants it, and I am extremely thankful to be able to say that in our country to-day there is not a good market for inferior cheese. When I first stood upon a platform like this, you could scarcely buy a pound of good cheese in this country, for the reason that it was all sent abroad. When they got a cheese that was not fit to send abroad, they sold it in Canada; and I can remember a time when we could not expect to find a superior butter on the tables at our hotels. You might if it was in the great cities, but not in the smaller places; but to-day the people know what a good article is, and they demand it, and you have to furnish it, and I am glad that that is the case. We do not want any inferior cheese with the name Canada on it to cross the Atlantic Ocean. (Applause.) As long as it comes to pass that there are some who make this inferior cheese, I think we have good reason to complain, and I think these people who have been doing things they ought not to do ought to be made to do better, and I say we must convert these people from the error of their ways somehow. If we cannot convert them, then we must drive them out of business, and not allow them to stand in the way of others who want to move forward, and who are determined to improve this product.

Now, I want you to fasten upon your banners for the year 1904 this word "Excelsior." My friend who spoke here has said we ought not to trouble about our cheese, but just stand where you are now. I wish to tell you that I am not a stand-where-you-are man at all. (Great applause.) I am afraid our friend made a mistake, and I hope the reporters will not put that down. I have no doubt it was just a slip of the tongue. We are not in the right place just yet. We are not where we can afford to stand still, and before we get through with this convention you will receive reports which will prove it to you beyond question. There must be no moving backwards, but I want to see a steady advance, and I give you that word "Excelsior," and if you have a flag on your factory put "Excelsior" on it, and let the people know everywhere that that is your motto, and your determination to move forward, not merely to stand still.

This campaign of instruction which has been inaugurated the last year or two, will certainly bring you into the position I long to see you occupy. There is no doubt that it will certainly improve the quantity of your products, and the quality as well, and will improve the price for which you sell your product. And the best price is what you want, and there is just one way to get it, and that is to raise the standard

of the quality of the article manufactured. I do not want you to forget that ; and if you can make an effort, we can accomplish what we are after, and reach the place where we can be able to obtain the very best price that is obtainable by any one for these goods. I should like this Association and the newspapers and everybody to proclaim the fact that an impure taint in milk will always make bad cheese or bad butter. Some people do not seem to know that. They seem to work upon the theory that it does not make any difference. A good many of them know it does make a difference. Bad cheese is not wanted, and it always commands a very poor price. It is only a very few years ago that we had an entirely different class of hogs from that we have to-day, and how have we made a change ? How has it come to pass that our people all over the country have come into direct line, and are working along the same plan in this matter ? It has not been done by any law that has been enacted. We have not put any law upon the statute book compelling them to do these things. It has been accomplished largely by the Winter Fair at Guelph, where we were able to present thase live animals before the people, and to say to the men in business who said they wanted a certain kind of animal : " Pick it out ; select it yourselves ; it does not matter whom it belongs to. When you get one good enough let us know it, and we will put it before the public so that they can see." And we did that, and afterwards we slaughtered the animal to see if the man was right, and we saw that what was wanted was there. Afterwards we had our Farmers' Institute speakers, who were compelled to be there in order that they might see and know what was wanted. We could not take these animals all through the country, but the next best thing we could do was to produce a chart, which was a fac-simile of the carcase. We made a specialty of this for two or three seasons. Every man talked exactly the same thing, and the result of it is that to-day you can go into almost any place you like, where there is a railway, and you will find the people going certain days of the week with these animals, and when they are put into the yard they will appear to belong to the same man, there is such similarity of the product. What we have done by the system of education and instruction in connection with the bacon trade, we can certainly do in connection with the dairy industry. There is no other way that I know of, that we can accomplish it so well. The chief difficulties that you have to meet just now lie practically in two directions.—unsuitable factories and impure milk. There are others, but these are the principal ones.

I hold in my hand a report of Mr. Publow, who will speak to you and give you considerable information about what is going on in the East, and this report says that 75 per cent. of the factories in Mr. Publow's district are defective ; some of them not materially so, but others some defect in the construction or situation where they have been erected. While that is so, it is pleasing to know that the people are coming to understand that they are defective, and they are making considerable progress to improve them, and they have spent more than $50,000 this year in improving their factories inside. Mr. Barr gave the report of the Western part of the Province, and practically said the same thing. Some people have said why not invoke the power of the law, and make these people improve their factories ? People who know me best know what a horror I have of undertaking to force my brother farmers into anything by use of the law. I have sometimes said that I think I know them better than most people. I know the spirit they manifest when you undertake to force them, and I know pretty well the spirit they manifest when you undertake to help them ; and when they see you are in dead earnest, and when you make them see you really can help them, they generally come to the rescue. The law would be a last resort as far as I am concerned, and I would try the other plan as far as it was possible. I cannot believe that a body of farmers who own a factory would not agree to an expenditure sufficient to improve when they know it would increase the price of their product. I suppose where the private individual owns one of these factories he may refuse to improve it, but the best thing to do is to drive him out of the business, and take it

up yourselves, and when you get hold of it you can put it into first-class shape, so that you can make a first-class article. We must agitate this question as far as the factories are concerned. Let it be understood that they are not all perfect, and there is great need of improvement in some places. You cannot blame the cow ; if you feed her properly she will do her part, and there are thousands of us working at the job all the time in our country. What spoils it ? It is sometimes tampered with directly by the man who owns it ; that is to say, before he takes it to the factory he takes some fat out of it. He takes out of one pocket and puts in the other, and says to himself, "I have made considerable out of that scheme." He does that deliberately. Or he goes to the pump and puts a little water in it, and that is one way, he thinks, of making a little more than belongs to him out of the milk that the cow has given him. That does not spoil it ; that is to say, the quality of the product will probably be the same, but he has been guilty of a little stealing. Perhaps he does not know any better, and I think that is about as merciful a thought as I can think of him. I should like to teach him better. If I had him where I could get at him, I think I could convert a man like that. In this report of Mr. Publow's, he shows that in the East they had 44,300 tests for adulteration, and it was found that 360 samples out of 44,000 had been adulterated in some way. That is considerable less than one per cent. of the whole, and I think the people are getting more moral every day in this country. There were tests made for adulteration. I find according to his reports that 10,960 tests were made to discover taints, and out of that number 9,020 show that the milk had been impaired or nearly 99 per cent. of the whole. That is a tender spot. Have I not touched the weak spot that ought to be made strong ? I would like to ask and find out what percentage of these men who brought their milk to the factory, understood it was tainted before it came there. What percentage was caused by lack of knowledge ? What percentage of them did it on purpose, knowing it was going to be spoiled ? I believe you will find a considerable percentage of them did not know. I do not believe that it is the best arrangement you can have to ask the cheesemakers to guarantee to make a first-class quality of cheese, unless you guarantee to give him good material. (Applause.) If you make an agreement with the cheesemaker to produce a first-class article, and then if yo deliberately go and tamper with it, then you do not deserve any mercy at all ; you are a bad man. (Applause.) And I pity your wife and children. There is no excuse for that kind of thing, and if you are going to hold the cheesemaker up to his guarantee, then you must be willing to be held up to your own. Some of these patrons will say, we do not know, and I believe that is true, and we want to find out these men and strengthen them so they can do right.

Now let me suggest to the Instructors : So long as I am head of the Department, and have the appointment of the Chief Instructors, I shall hold them responsible for the work of the special instructors. If they do not understand their business, we must dismiss them and get better men. Why not hold the Instructor responsible for the ability of the cheesemaker ? Why not let him go and ascertain whether this man is doing his duty or not, and then turn our attention to the patrons, and see that they do not give you this inferior milk, out of which it is perfectly impossible that you can make the finest article. Let literature be prepared to show the nceessity for these things, and if there be a mistake, show how to rectify it. Organize public meetings in these districts, so as to arouse public opinion, and have personal visitations, and let the gospel of clean, pure milk, clean factories and a superior product be proclaimed all through the land, until there will not be a member anywhere who will not know the importance of cleanliness in every respect in connection with this great industry. Let us keep at it until we have accomplished this purpose.

My concluding words would be these : I am ready to do my part. I want to know whether you are ready to do your part of it. There is something to be done by every man who is here. Some men here, like the President of this Association, hold more responsible positions than others. We can all take a part in this great work. I shall

take my part for the love of my country and you. Of course, I love you, and I want to help you, that is what I have been wanting to do all these years. You have a different motive. You will do it for greater profit for yourselves and your families. Perhaps this is a dearer motive, but my motive is sufficient to move me, and I hope that what I have suggested will be sufficient to move you. Why should I bother about it? I draw my salary just the same whether I do it or not, but I might lose my place if somebody knew enough to know I was neglecting my duty. You may say you need not bother about your work either; but if you do not, you will have reduced profits, and you will run the danger of losing the market which you have held for so long a time; and I want to say that there is an incentive for every one of us to do what we can in connection with this matter. I want to change a little quotation which you have all heard: "Canada expects every dairyman, from this time on, to do his duty." (Applause.) Remember the word I gave you, "Excelsior," which means improve factories, improve milk, a superior product, and a greater return to the people engaged in this great industry. (Applause.)

The Chairman: I am sure you are all delighted with the good advice given by the Hon. Mr. Dryden. We all know he is a very pushing man, and I am sure I can voice the sentiments of the dairymen of Ontario in saying we are very thankful for his coming here, and showing the interest he has taken in our Association.

MANAGING A HERD FOR PROFIT.

By Mrs. Adda F. Howie, Elm Grove, Wis.

In this great and somewhat intricate problem of dairy farming, one of the most important subjects for earnest and conscientious thought is the building of a suitable home for the dairyman's working partners. The man of limited experience will not infrequently give careful attention, and unhesitatingly adopt plans and suggestions that his better judgment, if called into serious action, would for various reasons quickly reject. In the first place, one who contemplates a successful business career must have a distinctive object in view, and in the matter of barn building the comfort and welfare of its occupants should stand first on the list of considerations. A thought for appearance may take a secondary place, while condensing space and labor-saving conveniences may justly be given a third position in the standards of requirements that fittingly belong to the modern, up-to-date dairy barn. For, while it need not be an elaborate or expensive structure, the matter of light, ventilation, and thorough comfort should be given the most weighty consideration. The introduction of artificial heat, as frequently advocated, would tend to debilitate, if not positively injure, the constitution of the inmates, and cement and sloping platforms should be studiously avoided.

Two or more reliable thermometers may guide the herdsman in regulating the temperature, for a too warm or unevenly heated stable is quite liable to prove more disastrous to the health and comfort of a herd than insufficiently heated. An even temperature of 50 degrees in winter will secure excellent results, whereas a higher one will cause the cattle to shed their coats too rapidly, and much earlier in the season than customary, and will consequently prove a fruitful source of colds, which not infrequently will develop into congestion; while repeated exposure or change from warm barn to the bleak, nipping winds incident to unprotected barn yards, is more apt to terminate in tuberculosis that may affect the vitality of several generations.

A dairyman who wishes to obtain the best results will on no account use rigid stanchions as a means of fastening dairy cows, and while it is not a commendable method even for beef cattle, it is doubtless less harmful for an animal of an easy-going, lymphatic temperament than for the highly nervous organization belonging to the accepted standard of a dairy worker. In order to do her best, a cow should have absolute control over

every part of her body, and anyone versed in cattle habits knows that a cow, when sleeping in a natural position, reposes with her head lying on her side. Consequently, any stall permitting perfect freedom of movement is to be given a preference, even in the face of an argument that stanchions require less room. Surely, the cases of injured udder should go far towards banishing this barbarous fastener from all well regulated barns.

Every thoughtfully planned cow barn will contain a number of roomy box-stalls for the use of cows about to freshen so situated as to be perfectly dry and free from draughts. A wide centre aisle, which may also serve the purpose of a feeding alley, with the cows facing it, will prove quite as convenient and certainly more pleasing in appearance, than where the cattle are compelled, like disobedient youngsters, to stare at the cold and unresponsive space offered by a blank outside wall, or, quite as disagreeable, with blinking, unprotected eyes, face the strong light admitted by uncurtained windows.

If the herd is composed of pure bred cattle, selected and cared for with a view to increasing the income by the sale of registered stock, too great attention cannot be given to the wise selection of a sire. For by introducing a cull from any breed, the herd is not only rapidly degenerated, with a corresponding financial loss to its owner, but the waste of time, be it one year or many, is of more vital import to the breeder who has not been allowed longer than 90 or 100 years to devote to the praiseworthy task of raising the standard of his cattle.

As a rule, the average dairy farmer has reached the pinnacle of his idea of advancement when he has placed a pure-bred animal at the head of his herd. He expects, without further effort, to travel a smooth road to success. If one should inquire as to the characteristics he wishes to develop and perpetuate, they would find he entertained only a vague thought as to the real benefit to be derived from such a course, further than the intention of improving his stock and a cherished belief that a transfusion of pure blood would speedily correct all evils incident to indifferent care and unwise selection. For years the dairy papers have dwelt on the importance of intelligent breeding as a means of improving our herds, and of giving painstaking attention to results.

Recently there has come under my personal observation a practical lesson that will be of value to me in discriminating for or against an animal. Heading my herd are two royally bred sires, both exceptionally fine as to individual qualities. On examining my records, I find that sire No. 1 has two daughters from the same dam, one testing from 4.9 to 5.6, the other testing 4.3 to 5.1. Sire No. 2 has two heifers from the same mother, one of which tested 6.4 when three weeks in milk, the other tested 5.6, within a few days after freshening with first calf. And while it will require another year or two before completing these experiments, I am now quite satisfied as to the ultimate results. While it has been scientifically demonstrated that we cannot feed butter-fat into milk, it is quite as apparent that we may be able to breed for butter-fat, and increase the flow and flavor of milk by judicious feeding and care. Therefore, the possibilities of marked improvement are largely within our control.

No up-to-date dairy barn, whether it contains one or one hundred cows, should be without its daily record sheet and accurate spring balance scales, if it be merely to intelligently estimate a year's earnings. The day has gone by when "a good mess" will prove a satisfactory and conclusive answer to a buyer who wishes to invest his money with a clear understanding as to the probable outcome. "How many pounds and what per cent. of butter-fat?" is a fair question that any reliable dairyman should hold himself in readiness to promptly answer and the scales, with carefully kept records, will undoubtedly now and then relieve his conscience from a severe strain. These, together with the Babcock test, will do even more, for, by placing implicit reliance on them, he will acquire a confidence that will enable him to buy as well as sell to the best advantage. The additional time and labor required has more than

once been offered in excuse for slip-shod methods that ignore the use of tests or scales. Still, I am confident that every dairyman who will for one month keep an exact record of the product of every cow in his barn, will require no further argument to be convinced of the beneficial results of this practice.

Every cow worthy of being admitted as a member of the firm, whether pure bred or scrup, is entitled to a name. A moment's time will suffice for hanging the pail containing her contribution on conveniently placed scales. Half time will serve to note the amount, opposite her name, on the slate or record sheet, and when the yield of a day, a week, a month, or a year is required to establish her reputation as a producer, there is no guess-work. It is an absolute certainty, and if she fails to meet a reasonable standard of requirements, let her at once seek shelter elsewhere. While with choice breeding stock, it would not be wise to work solely with the aim of securing a flow of milk corresponding with the utmost limit of her ability, yet, when butter or cream is to furnish the basis of revenue, a cow at the age of four years, incapable of producing 5,000 pounds of at least 4 per cent. milk, will scarcely insure enough profit to warrant her occupying a place that might be filled by a worker of larger capacity.

Every member of the herd should be gently and thoroughly groomed each day, not only as a means of securing a more wholesome and appetizing product, but as a stimulant to a healthful circulation, particularly when housed the greater part of the time A cow may safely measure her own allowance of seasonable roughage, but keen discrimination should ever be used in deciding the amount and kind of grain ration she may take with safety and profit. Cows, like humans, are creatures of habit, and may be trained to look for and appreciate a regular meal hour.

As it is not only desirable, but absolutely necessary, in profitable dairying to secure a comparatively uniform quantity of milk, one must be ever on the alert with practical plans that reach beyond the present needs While the tender, appetizing grasses of early spring are materially contributing to both flow and flavor, a generous soiling crop should be rapidly coming forward, ready to fall in line when pastures begin to weaken and fail under the depressing rays of a hot summer sun.

No experienced dairyman could possibly overlook or overestimate the value of an unlimited supply of clean, pure water, and an unfailing salt-box within the reach of every animal ; and, while I do not approve of forcing a cow to eat salt in order to increase her thirst, a cow in milk should be encouraged to drink early and often. Sixty quarts of water per day is the old Connecticut rule for a cow at flush, and many of the cows owned by some of these skilful breeders have been induced to dilute their high per cent. of butter-fat with sufficient water to produce in a single day 50 to 60 pounds of deliciously rich milk

The herdsman must be a man who by nature and practical training is fitted to look after the welfare of the cattle, on which so much depends. Every successful dairy farmer will confirm the statement that no dairyman can afford, even at the price of his board, to employ an ill-tempered or indifferent man to care for his cows, for every time a cow is struck, kicked or in any way abused, an indignant nature will quickly retaliate on the owner by a shrinkage in her milk. I have known of a case where a single blow forever destroyed the usefulness of a valuable creature.

Every time an ignorant or careless herdsman permits an animal to be exposed in severe weather long enough to become chilled, a like falling off in milk may be noted. Irregular feeding, watering and milking are also potent causes for shrinkage. Certain kinds of foods likewise have a tendency to decrease the flow. Loud talking or scuffling in the barn will not only prove detrimental to the nervous system of the approved dairy cow, but may be safely counted as an equal drawback to the financial interests of the owner. The penalties never vary, and are always enforced regardless of climate or locality.

Too great stress cannot be laid on the importance of cleanliness as a factor in profitable dairying. Its influence is so far-reaching that many grave errors of less magnitude may be condoned by its presence, for it is not merely a source of laudable satisfaction to one's self, but a potent passport to the good opinions of others. Therefore, let the watchword be: Clean barns, clean cattle, and clean, wholesome-minded employees, for they are a positive necessity to permanent success of dairy farming.

The barn should at all times be kept scrupulously clean. By that I do not mean that the manure should be removed once or twice a week as convenience dictates, but when cows are constantly stabled, at least twice daily. The gutters should be well littered with some good absorbent, the feed-boxes carefully cleaned, and, last but not least, for appearances' sake the floor should be swept. Furthermore, if a dairyman takes commendable pride and pleasure in his pursuit, he will find a faithful white-washing of the entire inside of his barn, stalls, boxes, and every bit of visible woodwork will amply reward for time and labor spent in applying this sanitary beautifier. Roller towels, wash basin, and soap should occupy a conspicuous place in every dairy barn, not alone for ornament, but for actual and frequent use.

When a dairyman has made good his part of the obligations of partnership, by providing his cattle with clean, comfortable quarters, well-cured fodder, and sweet, nutritious grain; has groomed them, and made them understand that he is their friend, and not the cruel, merciless, taskmaster who stands ever ready with a blow or curse to vent real or imaginary grievances on their helpless and inoffensive heads; when he has given painstaking thought to every phase of condition and circumstances, he has a just right to be equally exacting in his demands for a sufficient equivalent in the dairy products to warrant a commendable pride and insure a satisfactory financial reward. And in determining this the scales and test will be his most valuable assistant.

Many pages might be devoted to itemized instructions, of more or less service, but the intelligent, conscientious dairy farmer, who is ever seeking to condense time and labor, may find the entire secret of success quickly summed up in three great rules that stand at every turn along the entire route of dairying, a simple, plain, and straightforward guide board, pointing out with immovable hand the royal road to success. The directions are spelled in big capital letters, and read: "CLEANLINESS, KINDLINESS, AND UNFLAGGING ENERGY."

HOW BEST TO BENEFIT THE MILK PRODUCER.

By Jas. R. Burgess, Brantford.

In this case I take milk producers to mean patrons of cheese factories. Now, this is a very wide subject, but I shall endeavor to place before you some points wherein there is room for improvement, and, as every dairyman knows, the quality of the cheese depends largely on the quality of the milk from which it is made It seems to me these improvements would greatly benefit the milk producer, but we must have milk of first-class quality to manufacture cheese, which will bring the highest price.

During the past season, I have had the privilege of acting as Instructor in the Brantford and Dunnville district, and I know from my experience as a cheesemaker in previous years, as well as from the experience I have had during the past summer, that a number of patrons of cheese factories, either from negligence, or lack of knowledge, do not produce as much milk, or milk of as good quality, as they would if they gave more attention to the handling of their cows, and the care of the milk until it is delivered at the cheese factory. In fact, their interest should not cease until the cheese is finally landed on the table of the consumer.

In the first place, the milk producer should keep only as many cows as he can feed and care for properly. Of course, the best cows to keep are the cows which will

produce the most milk, at the least possible cost. Every patron should know what each individual cow is doing, and any that do not come up to the standard of 6,000 pounds of milk, or 250 pounds of butter per year, should be disposed of for beef, and replaced by one that will not only pay for her feed, but leave a large margin of profit to her owner. It would be of advantage to every dairyman to improve his herd by adopting some system of grading, such as the use of the Babcock test, and weighing each cow's milk. Part of our success in dairying has been achieved by the adoption of improved methods of feeding. Now, if more of our patrons would provide a plentiful supply of green feed, such as peas and oats, sown at different times of the season, to be fed when the pasture becomes dry and withered, this would benefit the milk producer by keeping up the flow of milk for a longer period, and also by lessening the cost of manufacturing. The stables should have plenty of light, well ventilated, and clean, in order to keep cows comfortable and healthy. The cows should be milked regularly; that is, at the same time every day, and the time between milking divided as evenly as possible. The udder should be cleaned with a damp cloth, to prevent the dirt and hairs from falling into the milk pail. Milking should be done with clean, dry hands, and in a place where the surroundings are sweet and clean. Quite a number of people still cling to the habit of drawing a little milk from the cow, then down go the hands, and the milk is splashed on the teats and udder of the cow, and away they go pumping at the old machine. The result is we have milk of several colors going into the milk pail. This practice cannot be too strongly condemned, as it is impossible to have milk of the best quality when milking is done in this way. Milk, as soon as drawn from the cow, should be taken to a place where the air is pure, and not less than fifty yards from the stables, or where hogs are kept, and then strained through three or four ply of cheese cloth, stirred and cooled to a temperature of 60 or 65 degrees, to prevent the growth of bacteria, and to keep it in sweet condition.

All milk pails, and cans, should be thoroughly washed with warm water, in which a little soda has been added, then well scalded and set out in the sun to air.

Where the whey is returned in cans, it should be emptied at once on arriving home, and the can cleaned. It is a very bad practice to leave the can standing full of whey in the hot sun all day, although it is very often done. It not only destroys the can, but makes it almost impossible to get smell of sour whey out of the can, which causes the milk to be of inferior quality, and, therefore, lessens its value. Rusty cans, or cans with open seams, should not be used to put milk in; the covers should fit well, so that it would not be necessary to use cloths, as they soon become filthy and unclean, and are not fit to come in contact with the milk. While I know that a great many patrons are endeavoring to send milk of a good quality, there are a number who, by sending milk of inferior quality, are undoing what the more progressive patrons are trying to do, and if some means can be devised to reach these patrons it will indeed be a great benefit to all concerned. I have had some experience along this line during the past summer, and, in the majority of cases I found that this inferior, or tainted, milk came from people who took very little interest in dairying, and never attend any meetings. They do not appear to realize that one can of poor milk may cause a loss of $5 to $10 in one day.

I think the only way to benefit those fellows and all concerned is to visit them, and endeavor to explain that by sending milk of this kind they are not only losing money themselves, but are causing others to loose. The patrons should pay the manager a sufficient sum for manufacturing so that they can demand the best possible service in return. The manager should keep the factory, utensils, and surroundings in such a condition that the patrons can say with pride: "This is our factory; this is where our milk is manufactered into cheese or butter." I know there are a number of factories that are in very bad condition, some of them being defective in having very bad floors, dirty walls, and utensils, poor curing-rooms, and altogether unfit to make cheese or anything else in, and in some cases makers are very careless and untidy. They could

make their work a great deal easier, and more beneficial, both to themselves and to the patrons, by taking more interest in their work, and keeping the factory, utensils, surroundings, and themselves, tidy and clean.

There is quite often a serious loss caused to the patrons through the cheesemaker taking in milk that is tainted and unfit to make a first-class article of cheese from. This kind of milk should always be returned. The cheesemaker should send a note with every can so returned, either visit, or have the Instructor visit, the patron who sends this milk, and explain to them what the trouble is, and how to overcome it, and how to send the milk in better condition. The milk producer would benefit to a great extent, if we had better factory buildings, and curing-rooms so constructed that the cheese could be cured at a lower temperature. This would make a great saving of shrinkage and also the quality would be much better. We have had a very forcible example of this during the past two seasons. From the favorable weather conditions which prevailed, the milk arrived at the factory in better condition, and the quality of the cheese is the best which has been shipped from Canada. This surely goes to show that by keeping milk at a lower temperature and having better buildings, we can improve the quality of our cheese, and thereby increase the demand and price, which will make it more profitable to the patrons, or milk producers.

THE COOLING OF CURING ROOMS.

By W. A. Bothwell, Hickson.

Before entering upon a description of methods adopted for the lowering of the temperature in curing rooms during the warm months, it would perhaps not be out of place to enumerate a few of the benefits to be derived therefrom.

As you no doubt all know, the Department of Agriculture not long since experimented along this line by establishing four cold storage stations, to which forty factories in all sent their product. By comparing results it was found that the shrinkage was lessened to the extent of one pound per box. This, when calculated in money, returns to the patrons, amounted to $120 per factory, an amount sufficient to pay interest on a loan of $2,000 at 6 per cent. But of vastly more importance than this was the improvement in quality.

A very practical illustration of this result and its effect has been furnished by the cool weather during the last two seasons. The improvement in quality has created such a demand for cheese that the prices, as you have seen, have been considerably advanced. So much, then, for results. We will now proceed to give details of plans adopted to reach the desired end.

As we were not so situated as to profit by one of the Government cooling stations, we set to work to devise ways and means of our own.

We first tried ice-boxes in the curing room, but found that these required a good deal of labor, and then proved not very satisfactory. We then adopted the sub-earth duct, forcing air through this by means of a fan. The air was taken from near the ceiling at one end of the curing room, and passing four feet underground for a distance of 220 feet to the fan. It was returned six feet underground for a distance of 310 feet to the other end of the room. Here the air passed and re-passed in pipes through a large box containing ice, and eventually into the room. We found that by this method only one-third as much ice was used as by the ice boxes. Speaking generally, we found that the air in its passage underground was reduced in temperature ten degrees, and ten degrees more by its passage through the ice box. Th highest temperature in the room that we noted while adopting this means was 67 degrees. This was at 5 a.m, when the temperature outside was 75 degrees. At 1 p.m. on the same day, when the thermometer registered 87 degrees in the shade, the thermometer in the room was 66 degrees.

By taking the air from the room instead of from outside, we think that a lower temperature is obtainable, and that ice is saved.

We found that during the months that the fan was in operation there was less mould on the cheese. We think it well to have the room as nearly airtight as possible, so as to prevent the warm air outside from entering.

The cost of fan, tile, ice-box, and labor, all complete, was about $200.

We have found this plan to give good satisfaction. We gladly give it with the we shall gladly hear of them. There may be someone here who could suggest some improvements in this system. We would be pleased to adopt them., There may be hope that it may be of use to someone here. There may be better systems. If so, some points which have not been made clear. If so, we shall willingly answer as best we can any questions that may be asked.

A Member: How does the air get into the box?

Mr. Bothwell: We have a large square box in the corner of the room where the air comes up through the floor and turns there into the box. There is a square pipe across the ends of the box, and then a tube three inches long, and the air goes three times through these tubes. Ice is piled on the top of the tubes, and the water from the ice runs around the pipes. The box is nearly half full of water before it runs out and drains away.

A Member: Have you any idea how much it costs to run the plant all summer?

Mr. Bothwell: We have not figured that out; we run it with our other work. It no doubt costs something, but we could not very well get it without cost.

A Member: Is that fan located near the curing room?

Mr. Bothwell: Right at the side of the boiler room. It draws the air 210 feet from the curing room. It goes out of the side of the room and down the side wall, and out of the main drain. The main pipe was two feet below the suction pipe.

A Member: The fan is in a tight case?

Mr. Bothwell: Yes; it sucked the air from the room; it could get nothing from the outside.

A Member: How many tons of ice would you use in a season?

Mr. Bothwell: I do not know what there would be in a ton. We had about a load left. Last year was a fairly cool summer.

Mr. Maclaren: Where did you get this work done?

Mr. Bothwell: Mr. Baird in Woodstock made ours. I got the idea from the planing mill; the fan that sucked the dust from the machines.

A Member: What power did you think it would require to run a fan?

Mr. Bothwell: We carried it off the large wheel of the engine on to a small shaft

A Member: How often did you require it?

Mr. Bothwell: Just when we were working.

A Member: How many hours did you require to run it?

Mr. Bothwell: I suppose about half the time; when we were using power for anything else, we ran it.

A Member: Did it decrease the tendency to mould in your room?

Mr. Bothwell: Yes, it decreased the tendency to mould. Our cheese was very little mouldy when we used the fan.

A Member: What temperature did your room stay at?

Mr. Bothwell: The highest temperature was 67 degrees, and it was 86 degrees in the shade outside, and that was when we were running the fan.

A Member: What temperature was the atmosphere the day before?

Mr. Bothwell: Pretty warm the day before. If Mr. Graham is in the room, I would like to hear from him. He was there one very warm morning, and saw our cheese free from mould.

A Member: What size was your pipe?

Mr. Bothwell: Suction pipe six inches, and the return pipe eight inches; sewer pipe cemented together about three feet long.

Mr. Ruddick: I can quit understand that the plans Mr. Bothwell described would work admirably as far as it goes; but in my judgment it does not go far enough to get the best results. You will remember the figures I gave you this morning. In the curing room, where the temperature was kept at 55 degrees, I think Mr. Bothwell's plan is a very excellent one, because it is a very considerable advantage to have the air in the curing room kept in motion, but I hope no one will be satisfied to adopt a permanent condition of affairs with a temperature of 65 or 67 degrees. I feel strong on the point that it will be cheaper in the end to have an ice chamber.

Mr. Steinhoff: I do not think we would be inclined to disagree with Mr. Ruddick, but, as a matter of fact, Mr. Bothwell's plan with the average run of factories is a very beneficial one, and if we can keep the temperature in the curing room down to 67 degrees, it would certainly be a great benefit, and the cheese Mr. Bothwell has this summer shows that benefit.

Mr. Ruddick: I quite agree with you in that. It is a move in the right direction. I did not get up to criticize Mr. Bothwell's plan, but I want to emphasize the fact that you must get a lower temperature. We must have some ideal to improve on, in order to improve all the time. I used to think if we could get below 74 degrees we were doing very well. We find that is a long way from the mark yet.

Mr. Barr: In the curing rooms that we erected last year with cement floors, and the floors dropped down three inches, the temperature scarcely ever got above 67 degrees with no ice, and if we can get Mr. Bothwell's system in one of these rooms, I think it would put it down to 60 degrees.

Mr. Ruddick: I doubt if the adoption of a sub-earth duct with a circulation of air would lower the temperature where you have a cement floor.

Mr. Barr: You would have the ice to make it cooler.

Mr. Ruddick: After cooling the room by a cement floor down to 67 degrees, you would not get a very great reduction after that. It is simply circulating the air from the earth beneath, but, of course, the ice would reduce it.

A Member: Did you run your plant on Sunday?

Mr. Bothwell: No, sir, I did not.

A Member: What is the best temperature to cure, if you ship weekly?

Mr. Ruddick: How long are they kept in the factory?

A Member: One week.

Mr. Ruddick: You are not curing cheese in one week. The cheese will be permanently injured in one wek if kept at too high a temperature.

A Member: Say fifteen days, what temperature?

Mr. Ruddick: Cure between 55 and 60 degrees; not above 60 degrees; 56 degrees is about the temperature aimed at. We made a great many observations in watching different rates of curing, and we found that there was about a week's difference, some times not quite so much. Ordinary cured cheese began to break down about a week before the others. If you lower the temperature down to 50 degrees, it will make more difference. The lower you go, it seems to retard the curing. It takes from five to eight months to cure cheese at 35 or 40 degrees.

A Member: Have you just one opening for the air to go in, and one for the air to get out?

Mr. Bothwell: Just the one opening for each. One is at one end of the room, and the other at the other end of the room. We tried the thermometer all over the room, and we found the air was circulating all over it. The temperature where the air came in was 50 degrees, and where it was going out 72 degrees, and the temperature of the room was 62 degrees. Our room is 60 feet long and 28 feet wide and 11 feet ceiling, and I think the pipe was rather small for that size of room. It took about an hour and forty-five minutes to deliver the air out of the room once. I have no doubt

we would do better with a lower ceiling. We have not double windows or anything like that, but just a wood floor and stone foundation. I think that if the room was similar to Mr. Ruddick's, we would accomplish better results.

A Member: If you held the cheese for a month at 55 degrees, what effect would shipping them in hot weather have on the cheese? Would the cheese held at that temperature stand the hot weather as good as the cheese that had been cured at a higher temperature?

Mr. Ruddick: I do not think I can answer that question, yes or no. If the cheese had been kept at a high temperature, they would be in poorer condition than cheese kept at a low temperature. The cheese will be injured somewhat after being taken out of a lower temperature and exposed to a higher temperature, but they will not be injured any more than cheese that had been cured at a high temperature.

There is an impression that when cheese is taken out of a lower temperature and exposed to a high temperature they deteriorate more rapidly. I do not think that is true. When a cheese once passes a certain grade of curing, it will stand more heat than it will at a later stage. The cheese will be injured in three days' time if exposed to a high temperature; we have watched that carefully. When the cheese is once well cured at a low temperature, it will stand more heat than a cheese that has been cured at a high temperature.

Mr. Jabel Robinson, M.P., was introduced, and after a few general remarks, said: I am not in the dairying business; I am a mixed farmer. I never made a specialty of dairying, and, therefore, I canot give you much information. I canot tell you anything about how you should make butter or cheese, and I do not know that my instructions as to how to farm would be very beneficial, as I am, comparatively speaking, a young man at the business. I was raised a farmer's boy, but for twenty-three years I was scarcely on the farm. I came to the then village of St. Thomas, forty-eight years ago, and I worked at my trade and went into business, and as soon as I got money enough I made up my mind that I would get a farm, and I went back to farming thirty-two years ago, and I have never been sorry for it. I bought a number of cows and went into dairying. The cheese business was just starting at that time. There was a cheese factory just five miles east of the town. A lot of the cows were entire strangers to me, and some of them were kickers, and I had to tie their front legs together in order to milk them. But I managed to milk the cows all right, and I am glad that there are so many people throughout the country who are milking cows, and sending their milk to the cheese and butter factories. If you have to compete with the English and Danish people in the market you must see that you have a pure article. They make oleomargarine in some countries, but they cannot send a pound of it into this country, nor can they manufacture a pound of it in this country, and I am glad that this is the case.

DAIRY INSTRUCTION IN EASTERN ONTARIO.

By G. G. Publow, Kingston.

I am sure it is a pleasure to be here, and I heartily congratulate the directors of this Association on the magnificent attendance they have had at their meetings. The subject I have to speak on to-night will not be so entertaining to some people as it might have been earlier in the day. I may say that the system of instruction in the East is practically the same as you have in the West—the grouping of factories into syndicates or groups. Last year was the first that we adopted that system in the East. We offered the factory men the services of an Instructor for the sum of $15, and the instructor's duty was to visit the factory as frequently as possible for the purpose of seeing that the makers were serving the people well, and making the most cheese

and the best cheese out of the milk intrusted to them. If the cheese was defective in any way owing to its manufacture, it was the Instructor's duty to instruct the maker along the best methods, and if the cheese were defective owing to the character of the milk, it would be his duty to find out whose milk it was that was causing the difficulty, and to lend assistance to the farmer so as to have it improved. It was also his duty to inspect the factories, and if anything existed in or around the factory that was detrimental to the best interests of cheesemaking, it was his duty to find that out and lend his assistance in having it remedied. It was also his duty to inspect the milk to detect adulteration, wherever there was reason to believe that fraud was being practiced.

We have received applications from over 500 factories for instructors, and that necessitated the forming of 42 groups. The number of factories in these groups was 574, and they received 3,317 visits. These visits consisted of whole days and parts of days. Wherever necessary the instructor spent whole days at the factory giving instruction, and the short calls he made were for the purpose of seeing that everything was progressing smoothly. The instructors made 4,400 tests with the Babcock tester and the lactometer for adulteration of the milk. They had 359 samples of this to be adulterated either through skimming or watering. They also made 10,693 curd or fermentation tests for the purpose of locating taints or bad flavors in the milk. There were 9,020 of these samples shown to be more or less tainted, 9,000 out of the 10,000, and this, to my mind, shows the importance of directing our energies to the milk supply rather than to the detection of crime as a means of improving the condition of the milk or to bringing about improvement.

We held meetings of the cheese factory patrons, and the farmers were invited to be present, and practical addresses and demonstrations were given by the use of the curd tests. We held 143 of these meetings, with an average attendance of 40. As well as holding these, efforts were made to reach the farmers who did not attend these meetings. We found that it was the most progressive men who came out to the meetings, and we found that it was the people who were not at the meetings who were in default, and we made an effort to reach these people by making personal visits to their homes, and we succeeded in visiting 1,993, and on visiting these farmers we found usually that the difficulty in the milk was due to carelessness on the part of the milk producers. We found that they did their milking in unsanitary places, such as strong smelling yards and stables, and the milk cans were left in unsuitable places, and very frequently the vessels were not in the best condition; and as a result of this hundreds of milk stands throughout the section were moved to more desirable places, and hundreds of old rusty milk cans were replaced by new ones. The makers will see the benefit deriving from such work, and, therefore, stimulate the farmers and instruct them to keep their milk and give it in a better condition to the factories. The factory men were also stimulated to action, and there were 237 of the factories improved, including some eight new factories built. The improvements amounted to a little over $1,000, and if that could be continued throughout Eastern Ontario there would be a very marked difference in the condition of our factories.

The makers were also stimulated, and the instructors left reports at the factories, and sent reports in to the general instructor, and this had the effect of stimulating the makers to do their best.

I might say that throughout Eastern Ontario more improvement has been made in the milk supply this year than there has been in the last fifteen years, and more has been done in the way of making these factories suitable for the purpose for which they are intended than has been done in the last fifteen years. The cheese throughout Eastern Ontario, while it may not be any better on the whole, is the best cheese in the history of the trade throughout Canada. We find in Eastern Ontario the common difficulties that you have in the West, and these common difficulties are: Flavors not clean, textures coarse, finish not good.

The flavors of the cheese depends largely upon the man who produces the milk. Unless you send good, clean-flavored milk to the cheese factory or butter factory, you need not expect to get clean-flavored cheese or butter. The best way to remedy the difficulties in the milk supply is to keep it clean and cool. You should cool the milk at once. The texture of the cheese is due to a very great extent to the condition of the milk. If the milk is over-ripe, and 50 per cent. of the milk delivered throughout Onario during the months of July and August is over-ripe, the remedy for that is to cool the milk. It takes more milk to make a pound of cheese, and, and the cheese will not be as good unless you cool it and keep it sweet and clean.

The finish of the cheese depends entirely upon the maker himself, and the texture also may be injured by the maker. The finish of the cheese is not nearly as good as it might be. If you want to have a good criticism form the people on the other side of the water you must finish your product better. There is no excuse for poorly-finished cheese. If you go to a tailor to get a garment made, and he makes one sleeve shorter than the other, you will not be satisfied with it, and the same thing applies to the cheese trade.

I will not detain you any longer on this occasion. In regard to the system of instruction in the East, I will say the only difference I see between the East and the West is that you do not charge your factories as much as we charge. We charge them $15. and you give service for $10. Possibly you are giving them just as good service for the money, and I think it would be well for both Associations to work along the same lines. So far this year we are having as many applications for instructors as we had during the past year.

The Chairman: You can see that they are having about the same trouble in the East that we are in the West. We will now have Cheese Factories Report and Awards of Prizes for General Improvement, Sanitation, and Cleanliness.

PRIZE CHEESE FACTORIES.

Mr. G. H. Barr: If there is one man in Canada who has been liberal towards the cheesemakers and buttermakers, it has been Mr. E. G. Henderson, the manager of the Windsor Salt Co. In the past year he has donated gold medals to prize winners for cheese and butter. During this year he made a new departure, and donated the sum of $200 to be given the factory which made the most improvements during the past season.

We have five groups of factories under instructors, and this money was only given to the factories receiving instruction from our instructors. This year we divided the money as follows: $40 to each group, the first being $25 and the second $15. I was appointed with one of the directors to visit these factories, and we awarded the prizes as follows:

Ingersoll group—1, North Oxford, G. M. McKenzie, Ingersoll; 2, Crampton Gore, John Stubbs, Crampton.

Simcoe group—1, Rockford, John Eccles, Villa Nova; 2, New England, John Francis, Eden.

Brantford group—1, Lynden, E. Nichols, Lynden; 2, Canboro', J. Seitz, Canboro'.

Stratford group—1, Avonbank, R. Johnston, Avonbank; 2, Kerwood, W. M. Waddell, Kerwood.

Outside factories—1, Atwood, Wm. Angus, Atwood; 2, Spring Creek, Farlane Christie, Woodstock.

I may say that we did not find awarding prizes an easy job, as many of the factories were all right in some conditions, and all wrong in others. It was very hard to size some of them up, and say just which was the best in all respects. In some of the groups it was not so hard. We took a broad view of it, and took into consideration some of the conditions, and the finish and quality of the cheese, and some of the fac-

tory surroundings. In these ten factories there had been in the neighborhood of $5,000 spent in improvements. The majority of them were in a nice, clean, sanitary condition, and you could not find any fault with them. I think the most improvements on any one factory was in the neighborhood of $1,000. It would be hard to find fault with regard to some of the factories. I think this is one of the best things we have had in connection with our work; it stimulates the makers to clean up the place and put their factories in a better condition. (Applause.)

The Chairman: Mr. Barr told you that some of the directors accompanied him. Mr. Paget, Mr. Robert Johnston, Mr. J. H. Scott and myself were the directors who accompanied him, and I will now call Mr. Paget to say a few words.

Mr. J. N. Paget: I do not know that I can enlarge very much on what Mr. Barr has told you. I happened to be one of the directors who were chosen to accompany Mr. Barr on his tour of inspection. I had the Simcoe district, and, therefore, can only speak with regard to that district. In the first place, I would just like to say as a director of the Association that I think the action of Mr. Henderson, the manager of the Windsor Salt Company, is to be very much commended by the dairymen of Western Ontario. I am sure his action in awarding this prize money has resulted in stimulating the makers to do better, and I can say that it was a very difficult task to award those prizes. It was impossible to please everybody, because the conditions we found varied so much. Those who were present yesterday will remember that it was said that 50 per cent. of the factories were not in the condition that they should be. I do not think there is even that percentage of factories in the Simcoe district in a fit condition to manufacture cheese. The buildings generally were not good, although there are some buildings in that district that will compare favorably with any factories in Western Ontario, or in the whole Province of Ontario. On the other hand, there are a great number that ought to be torn down, as they are not fit to make cheese in, and the makers are handicapped in trying to make a first-class article. Mr. Henderson awarded this money solely to encourage cleanliness in these surroundings. We did not take into consideration the character of the buildings. Some of the buildings were new and up-to-date, and we did not take that into consideration at all. We took the conditions as we found them. A man in a poor building does not have the same chance to do the work as a man in a new building has. I think we must get better buildings if we are going to maintain the position we now occupy in the cheese trade of the world. We were told by Mr. Ballantyne that our cheese at certain seasons of the year are not as good as at other times, and he told us that cheese made at certain seasons were the finest in the world. Why is this? Why cannot we make the best cheese in the world all the time? I believe we can if we have proper buildings, where the temperature can be controlled; and I think the great need among factorymen to-day is improvement in the character of the buildings, and I think we owe to Mr. Henderson very much for his action in awarding this money, and I trust it will encourage those who are receiving the awards to-night and others to improve as much as possible. (Applause.)

Mr. Robert Johnston: I do not know that I can enlarge or tell you any more than what our First Vice-President has told you with regard to our trips among the factories. The group I visited with Mr. Barr was the Dunnville-Brantford group, and I am pleased to say that we saw some very good factories, that were very well kept, but I regret to say that we saw others that were not well kept, and some for which there was no excuse. The factories as a rule were fair, and the outside appearance was better than I expected to find in that district, not having travelled it before. We found the inside of many of the factories anything but what they should be. Cleanliness is a very imporant thing in the making of cheese. I must say that in the two prize factories the appearances were good both inside and outside. They were both frame factories, and they had been used for a number of years. They were tidy outside and in, and I have seen factories that were kept very well inside, but very untidy

outside, with weeds growing up around the doors and wood scattered around the yard. A maker who wishes to make a factory what it should be should spend one half day a week on the outside, and make his factory attractive. I think this awarding of prizes will be a good thing in the future. I do not know whether there will be any prizes this present year or not, but I feel sure that, if there is, there will be keener competition among the factories in the district. I fully concurred in Mr. Barr's decision; I left it to him, but the factories that got the prizes were the ones that deserved them.

The Chairman: I will now call upon Mr. E. G. Henderson to tell you his object in awarding the prizes.

Mr. E. G. Henderson: I feel very much embarrassed indeed, after the kind things that have been said by the previous speakers. It is an awkward position for me to occupy, but, having been asked by your Secretary to give the reasons why we offered these prizes, I could not refuse.

There is an object in everything, and we had an object in giving these prizes, as we had in giving the medals and prizes for the past ten years. We recognize the fact that the Province of Ontario owes its prosperity to a large extent to the dairying industry, and I am safe in saying to-day that the results from dairying are larger than from any other industry in the country. To a large measure the success in dairying depends on the makers. They can either make or impair the good name of Canadian cheese and butter.

In the progress of business, I have attended every convention held in Ontario for the last ten years, both in Eastern and Western Ontario, and every speaker has said that you require to be cleanly, tidy, and careful, and to keep your product cool. I have heard this every year, and lately I heard that matters were getting worse instead of better, so instead of giving prizes, as we have been giving in the past for the best butter and cheese, I determined to give prizes to the makers for sanitation and cleanliness and general condition of their factories. We want to encourage the makers to be clean. It has been a wonder to me sometimes how some makers could make cheese at all. In going through the country, you can tell where some cheese factories are when you are a mile away from them. I do not know who is to blame, whether the maker or the owner, but I know one thing, that if I were a patron my milk would not go to that factory. I would never send my milk to a factory that you could smell for a mile, and I do not think I exaggerate when I say that there are factories in Ontario that you can smell a mile off. The reputation of Canadian cheese stands very high. I do not suppose there is another country that has a higher reputation for cheese than Canada, but if these factories are allowed to get into that condition, I think that in a very short time our reputation will go backward instead of forward. I thought that offering these prizes might stimulate makers to clean up the factories. Whitewash does not cost very much. Soap does not cost very much; a little labor does not cost very much, and a great many of the factories could be cleaned up and made attractive in a very short time. Of course we know there are some farmers who keep their cow stables and premises in the best possible condition, but there are others who do not, and I think if the cheese factories were kept in a good condition, it would be an object lesson to the farmers, and if a maker happened to get milk that was off flavor, he would be in a position to tell the farmer to clean up, and send his milk in better condition, if the factory and its surroundings were in good sanitary condition.

Next year we intend giving prizes in the Eastern division, and I hope, if your Directors will accept it, to give prizes for the creameries, on similar conditions to those for the cheese factories.

The Chairman: Mr. Henderson's address contains some very valuable advice, and I take this opportunity to thank him for his liberality in giving these prizes.

ADDRESS AND PRESENTATION OF PRIZES.

By A. F. MacLaren, M.P., Stratford.

I feel like the German and the cross dog: I have got a snap to-night, and I am going to have the pleasure of presenting these beautiful prizes and this magnificent trophy.

I wish to thank the people of St. Thomas and the surrounding country for the magnificent reception they have given the Dairymen's Association of Western Ontario. I feel that we are going forward with leaps and bounds in this great cheese business. I remember thirty years ago, when I first commenced to make cheese, that when I walked down the street the kids used to call at me "Cheese it" (laughter), and they used to look upon us cheesemakers as people who were not of much account; but when I see such a magnificent audience of dairymen and dairy-women as we have here to-night, I begin to feel that the cheese business is gaining a position in this country, and that is a fact of which every citizen of Canada is proud, and when you realize that we are bringing into this country, through the efforts we are making in this great industry, $51,000,000 of English money, I think we have great reason to be proud of the position we occupy. (Applause.)

I was on the programme last night for a short address on transportation of dairying produce, but got her too late for the meeting, the train being late; and I am going to occupy your time for a few minutes on that important question, as I would like to say a few words as to the manner in which our goods are being handled by the railway and steamship companies in this country. I think the railways are giving us better accommodation than they did several years ago. They are giving us better cars and handling our goods in a better way. During the summer, however, there was much disappointment in securing cars, although I do not know whether the railways were to blame for that or not. The steamship companies are giving us cold storage and cold air for our butter, our bacon and hams, and our poultry and fruit, and landing these goods in the Old Country in very much better condition than they have been doing heretofore, but I am sorry to say that when the goods are landed in the old land that the produce merchants leave our cheese and butter on the docks for from one to five days, and sometimes they are left ten days lying on the docks. Now, I think that is a very great mistake. When we go to the trouble of getting cold storage in our factories, our railway cars and steamships, and shipping our goods to the markets of the world in the best possible condition, I think the least thing our English friends at home should do is to look after our goods when they arrive there, and I would like to see this question taken up, and I understand it has been passed by the Government into the hands of the Produce Association in Montreal, Liverpool and London, and we hope for better results next year. A great quantity of our goods have been injured by not being properly handled the other side of the water. I was there myself a year ago this summer, and I saw cheese arrive on the steamers in first-class condition, kept at a temperature of 60 to 65 degrees, and I have seen them left there on the dock in a temperature of at least 90 degrees, and then carted down Tooley street, and the oil running out of the cheese and butter, and I was very much disgusted (cries of "Shame!"), and I spoke about it; and when I returned to this country I saw that the matter was taken up by the press, and more attention was paid to our goods afterwards. (Applause.)

With regard to transportation rates, I have on a number of occasions brought up this question, and have talked so much about it that some of our local papers at home say, "There is MacLaren going again on the transportation question." I think the time has arrived when we should have the goods we produce placed on the market at a cheaper rate, and I think we ought to keep up the fight. I think the time is coming when we will have electric railways all over this country, and my idea is that we should ship all our cheese and butter to some central point. I have often thought

that if the cheese buyers would club together in groups at such places as Ingersoll, Woodstock, London, Stratford, Listowel, and, instead of buying the cheese at these points, ship them every two weeks to Hamilton and Toronto, and have them all sold there, in three or four sales a week, and have all the buyers go there, and buy this cheese, and inspect them and ship them there, by that way we would get a competition in rates; we would have railways and the steamships to compete. I hope the time is coming when we will have the waterways deepened so that the steamers can go up to Toronto, and we can ship from there to Montreal and Quebec, and then transship them to the ocean steamers. I hope the railway commission that has been appointed will do some good. I have been fighting for it, and we have to thank the Lord that they have got to work. I understand they commenced a few days ago, and I hope the time will come when the Lake Ontario and St. Lawrence route will allow its steamers to go up and take out produce right on board at Hamilton and Toronto.

Now, I want to speak about Mr. Henderson, and the many prizes he has given ever since he has been connected with the Windsor Salt Works. He has done a great deal to encourage the cheesemakers, and I think this association owes Mr. Henderson a great deal. I am sure every one appreciates his kindness. I think I am voicing the sentiment of every dairyman here when I say so.

I also want to congratulate my friend Mrs. Howie for her magnificent address, and I feel sometimes that I would like to go over and have a look at that cow home. I wish there were more such cow houses in this country, and I hope this will not be her last visit to us, and that she will come over again and give us some more good advice.

With regard to the products we have shipped from Canada this past year, I must say that it is something marvellous the amount of cheese and butter, bacon, poultry and fruit we have shipped; it totals $100,000,000 worth during the past year. (Applause.)

I will not take up your time much longer, but will proceed to perform the duty Mr. Ballantyne was supposed to perform, and I regret that he is not present to do it. Mr. Green will kindly come forward. I want to tell you this is not the first trophy Mr. Green has won. I had the pleasure of presenting him with a trophy something like this, given by the Industrial Fair, Toronto. There was over 500 cheese exhibited there, and Mr. Green had the honor of taking the first prize, and a trophy similar to the one you see here. Now, Mr. Green has been in competition at this exhibition with some 70 factories, and I think he deserves a great deal of credit for taking the first prize, and I hope he will go on and continue to win these prizes. He has got to win this trophy next year in order to keep it, or win it three times. If he wins it twice in succession, he wins it for for life, and I hope he will be the winner next year.

I think competitions of this kind are very encouraging. I think they are really more encouraging than an exhibition, such as Toronto, although I hope you won't go back on the great Industrial Fair at Toronto, because I happen to be Chairman of the Dairy Department, and was instrumental in having that great building erected for dairying purposes. I think Mr. Green should feel very proud that he has taken the first prize, and, although I hope he will win it again, I hope you will give him a hard race for it, and I trust that every body will try to beat him.

I have much pleasure now in presenting you with this trophy, and I hope that you will continue to prosper and do your best another year. (Applause.)

Mr. Green: I am sure it is not necessary for me to say it affords me great pleasure to have the honor of making the cheese that won this magnificent trophy. I have always tried in the past to do my best, and I am sure this will encourage me to go on in the future and try to do even better. (Applause.)

Mr. MacLaren then presented the prizes won in the cheese factory contest in his usual genial and happy manner. Each prize winner was loudly applauded as he boldly stepped on the platform to receive the coveted prize. In conclusion Mr. MacLaren said: I think the gentlemen who have won all this money ought to be proud of them-

selves, and we ought to be proud of them. They are fine-looking fellows, and I am going to ask Mrs. Howie to say a few words to them by way of encouragement. (Applause.)

Mrs. Adda Howie: It gives me very great pleasure indeed to congratulate you on your success, and I would make a few suggestions to the people here, that would help you even more in your future career. In the first place, it must be a great source of satisfaction to you to have so enterprising a man as Mr. Henderson, who will offer a stimulant to the dairy business. Now, if among all your citizens you have another man like him, let him go out to the farms and the cow barns, and there offer rewards for the most sanitary barns, the best cared-for cattle, the finest product that can be made on that farm, and then send that product to these young men to manufacture into cheese, and they will have a greater chance to succeed. (Applause.) You cannot expect much of any one unless he has good material to work on. They may scour day and night, but if a filthy product comes they can no more make a perfect cheese or good butter than a housewife can make good bread out of musty flour. (Applause.) Give them a chance, and let cleanliness be the watchword in every factory and every farm, because it is not only part of our stock in trade, but it is the passport to the highest esteem of our patrons, it is something that we should all guard as our lands, our buildings, and our honor. (Applause.)

The Chairman: I am sorry to say Mrs. Howie will not be with us again, and I must say we are very thankful to her for the very good advice she has given us. I cannot express words, and I am sure you feel the same in thanking Mrs. Howie for the grand advice she has given us in her various addresses.

RIPENING CREAM, CHURNING, AND PACKING CREAMERY BUTTER.

By J. C. Bell, Strathroy.

This subject is of very great importance to the butter producers of Western Ontario at the present time. It begins at the right place, the ripening of the cream. This means ripening at the creamery, which is the proper place to do it, and unless more of it is done there we are not going to maintain a prominent position in the markets to which we ship our butter.

The first thing necessary is a sweet cream. This should test from 30 to 40 per cent. butter fat. Preferably about 35 per cent. The second thing is a clean flavored culture testing six or seven by the acidimeter. This should be mixed with the cream as early as possible, but not while the cream has a temperature of more than 70 degrees. If the cream can be delivered into the vat at that temperature, I would put the culture in first. By doing this, the ripening process is started earlier, which means that the cream is ripened and cooled down earlier, and the low temperature maintained for a longer time, which gives a butter with a better texture. Also by having cream at the ripening temperature for as short a time as possible, there is less danger of having other flavors develop. The amount of culture to use varies in different sections, but I would use as high as 15 per cent. to get the result I wanted. In the summer, with cream testing 35 per cent., about 50 degrees would be a good churning temperature. The lower temperature gives the more exhaustive churning. The amount of acid on the cream at churning time should exceed 5 if the butter is for export. This will help give a milder flavor, which the export markets mostly want. For local markets it is well to develop 6.

The cream should be strained into the churn. This will remove any particles of curd or clotted cream. The churn should run about fifty revolutions, if a box, and sixteen to eighteen if a combined. From forty-five to fifty minutes is long enough to get good results in churning. I do not think anything is gained by churning a longer time than this.

When the separation begins, or, in other words, when the butter breaks, a small quantity of water should be added. This thins the churn's contents, delays gathering

slightly, and gives a more complete separation. I prefer churning till the butter is slightly coarser than wheat grains. By doing this I think we get a drier butter without injuring the texture. After the buttermilk is drawn off it is a good plan to spray the butter. This removes most of the buttermilk which still remains, and saves time in waiting for it to drain off. The wash water should not be higher than the churning temperature. A little salt should be added to it. This will help free any milky substance which may be in the butter, and will also help to expel moisture. The butter should be allowed to drain for twenty minutes after the wash water is off. There is not time enough given to this generally, and I think it is partly the cause of so much moisture appearing in our butter. When given this amount of time for draining the butetr will be in good condition for working. In the combined churns from fifteen to twenty minutes must be allowed for working; this gives the salt time to dissolve and the moisture time to drain away. If a box churn is used, it is best to salt in the churn and let the butter stand for ten or fifteen minutes. By doing this the salt is more thoroughly incorporated, a great deal of moisture is expelled, and less working is required afterward.

The butter should be worked till when cut with a sharp ladle it presents a close even face, and when pressed will not emit drops of moisture.

In packing care should be taken to have the boxes clean, both inside and outside; a clean package is always attractive. The boxes should be nicely paraffined. This prevents shrinkage, the paper should be placed smoothly, having no wrinkles to make creases in the butter. Paper should be soaked in a brine and formalin solution for about twenty hours, to destroy mould germs.

The butter should be put into the boxes in small quantities and packed well along sides and corners, so that no holes are left in which moisture will collect. This tends to make a discoloration in the butter, and does not give a good appearance when it is stripped.

I think the smooth finish looks best, with corners and edges neat. Fold the paper neatly, cut off the edges of paper that need doubling, and put on a light salt paste. Fasten corner and put a sack on box. This is a very necessary part, because without it the package becomes more or less marked, and will not have an attractive appearance when marketed.

Now, just a word about out paper and boxes. The most of the paper used is too light, and should be used double. We should have a paper that would weigh from forty-five to fifty pounds per four hundred and eighty sheets. Instead of this we have about a thirty-pound paper.

Our boxes are even worse in some cases than the paper. There is too much piece work about them.

The joints are poorly made, and the paraffining poorly and roughly done. A great many unpleasant things have been said about our boxes, and there certainly has been cause for it.

Now, let us go out for 1904, insisting on better cream, better boxes, better paper, and not only insisting on it, but getting it.

By doing this we will attain a more enviable position in the British market than we have had in the past. We should be able to make as good butter in Western Ontario as is made anywhere. Let us, then, make a stronger effort this year than ever to accomplish it.

A Member: Yesterday there, at the Exhibition Hall, they said not to put any salt over the top of the butter.

Mr. Bell: Some buyers like it without salt and some want salt; you must do as you are asked to in that respect.

Mr. Steinhoff: Have you found that they make any strong boxes at all in Western Ontario?

A. No, I have not.

TRANSPORTATION AND HANDLING OF CHEESE.

Mr. J. A. Ruddick, Chief of Dairy Division, Ottawa, then delivered an able address on the above subject, which is contained in the report of the proceedings of the Eastern Convention.

Mr. Steinhoff : I would like to ask Mr. Ruddick if he has found any right kind of boxes. It was a serious question this year to get boxes at any price, and it becomes a question as to what we will do for boxes.

Mr. Ruddick : I think the present elm veneer for the box is capable of vast improvement. The boxes are not made nearly as well as they might be. When we contracted for our boxes they offered us the ordinary run of box, and I said, "I will not have that box," and they said, "It will cost more money," and I said, "We must have good boxes," and they sent us boxes that were not well made. Our superintendent happened to know something about box-making, and sent them back, and we made them make good boxes. Our Superintendent went to the factory, and he found that they had a common laborer making the boxes, a man who did not know the first thing about box-making. We should use a heavier veneer, not less than 5 to the inch. If it is cut properly, and the wood is boiled properly and well nailed together, it will stand fairly well, provided the cheese fits in the box. At Montreal the cars come in frequently with the boxes broken, because they were not properly loaded. I saw some boxes made of paper cemented together, and I am told that they can be made for about 12 cents each. They are made in Jackson, Michigan.

A Member : I do not think the prices of boxes have been too low. They said they were not able to give us first-class boxes. Now, they are putting up the price, and we should make them give us a proper box. I think we are nearer solving the question than we have been before.

A Member : Do you paraffine when the wax is at 200 degrees ?

Mr. Ruddick : We heated the wax to 200 degrees. At the New York State Dairymen's Association, a gentleman told me he paraffined at a temperature of 240 degrees.

Mr. Derbyshire : There are two points that I would like to emphasize in Mr. Ruddick's address, and that is to thank the Department of Agriculture at Ottawa for the way they have taken hold of the transportation question, furnishing us with refrigerator cars in such large numbers, and in preparing ships to carry the cheese from Montreal to the British markets. These are things we cannot emphasize too strongly. It is of the utmost importance that when we have the cheese made they should be delivered at the market in the finest condition, and this can only be done if we have sufficient cars to carry our cheese. I would like to thank the Department for what they have done, so as to encourage them to enlarge the system in order that all our goods may be handled in this way.

The next point is that the cool-curing stations they have established at Woodstock and Brockville have been great educational centres, teaching us the proper temperature at which to cure the cheese, and giving us an idea of what a curing-room should be. In this way they have done a great deal to bring the matter forcibly before all the makers and factories in the country.

The other point is the boxes. After we have made a cheese, and have it properly cured, it is folly to put this cheese in ordinary boxes. Get a first-class box, and have them to fit the cheese and then we will be able to place our goods on the British market in the proper condition. We are all indebted to Mr. Ruddick, Chief of the Dairy Division at Ottawa, for the good work he has done in the past. Let us encourage him to have the system enlarged. (Applause.)

A Member : The Government have been getting the best boxes and paying extra for them, and we are getting the culls, and you will find that they will be charging us a great deal more for them in the future

Mr. Ruddick : Your money is as good as the Government's.

THE REQUIREMENTS OF THE EXPORT BUTTER TRADE

By Archibald Smith, Woodstock.

The requirements of the export butter trade is not only a very important subject at this time, in view of our standing in the market, and the fact that we are not receiving the price for our butter which we might obtain, but also for the reason that competition each year is becoming very much keener; and when we consider the fact that the exports of butter to Great Britain, from the various countries, is increasing yearly at the rate of about 12,000 tons, and that a higher standard of quality is required, you will at once see that if we are to make the manufacture of butter as profitable to the Canadian farmer as it should be, and establish greater confidence with the dealers in Great Britain, we must not only improve the quality of our butter, but also adopt more up-to-date methods of putting it on the market.

While we are glad to learn that Canadian butter is slowly improving in quality each year, we find that one of its greatest defects is lack of uniformity. The best butter made in Canada during the summer months, for which there is the greatest demand, is made in the Eastern Townships, in the Province of Quebec. It is made in separator creameries, sold regularly every week, is shipped at once to the refrigerators in Montreal, and is put on the market in excellent condition, the flavor being almost perfect. But in speaking of the quality of Canadian butter the average quality of that produced in the whole country is what we must consider, and, as you are all aware, the conditions existing here in Western Ontario are very different from those in the Eastern Townships. Here we are further from the sea-board, and the greater number of our creameries are operated on the cream-gathered system, many of them are in a very poor condition, and still adopt the old-fashioned method of making and disposing of their butter. As long as these conditions prevail,—as long as factory men refuse to adopt improved methods of making, and refuse to sell and ship their butter weekly, and add the necessary machinery and improve their storages,—there will be no improvement in quality.

To bring about the changes which are requisite, it must be shown to the farmers and factory men that it will pay them to do so.

To illustrate to you in a practical way the loss sustained by adhering to old methods, I have selected a list of thirty-one cream-gathered creameries with which I am well acquainted, and, have figured out the loss of each individual factory, during the past season. I have an excellent opportunity of knowing the prices paid each creamery, and also the quality of their butter. I have estimated their output to be as large as that of last year, which will be nearly correct, and by comparing the prices paid these creameries for butter with the prices paid a number of other cream-gathered creameries which are properly equipped, and have adopted improved methods of making, we find the difference in prices makes a total loss to these creameries of nearly $27,000. This was a direct loss to the farmers, which could easily have been averted, for what can be accomplished at one creamery can be accomplished at others. It is simply a matter of putting the factories in proper condition, of selling the butter regularly, and of teaching the makers. The figures presented may seem to some rather high, but I have taken only the factories with which I am well acquainted, and am certain of the price paid them, while the butter from these best creameries which I have mentioned was offered, and sold, on the British market as Finest Townships. It was handled by two firms during the whole season, and, with the exception of two complaints of mould, the quality was invariably reported satisfactory, thus illustrating the fact, that the finest quality of butter can be manufactured on the cream-gathered system if the proper methods are adopted. Large quantities of Canadian butter, when first made, are doubtless equal in quality to the best Danish, but owing to the conditions under which it is held, and the length of time which usually elapses before it reaches the consumer,

the flavor usually deteriorates more or less, and to prevent this I would strongly advocate the use of boric acid to the extent of ½ per cent., which is permitted by the English Force laws, which assists very materially in preserving the flavors without being an adulterant, or in any way injurious to the health.

While the farmers and makers have it in their power to greatly improve the quality of our butter, a great deal also depends on the salesmen, the buyers, and the transportation companies. It is claimed that 90 per cent. of the Danish butter is consumed in less than two weeks after it is made, while in Western Ontario we frequently find from two weeks' to one month's make of butter setting in the creameries in temperatures ranging from 38 to 50 degrees. It is then often shipped by the factorymen or buyer to a city storage, and held for months on speculation, and finally reaches the Old Country market in a state of undesirable condition.

We have also transportation difficulties to contend with, which demand immediate consideration; the supply of refrigerator cars is inadequate; the icing of the cars is very poorly attended to, and very often they have little or no ice in them; the butter of each creamery is taken in regardless of its temperature, which often serves to heat the cars still more. The number of steamships with refrigerator compartments are inadequate for the trade, more especially in shipping to London and Liverpool; this will to some extent be remedied next season, by additional steamships with refrigerators from these ports. One of the chief difficulties we have to contend with, however, is the delay of the railroad companies in forwarding the goods to Montreal, and reloading them on the boats. To remedy this difficulty I would suggest that instead of shipping butter to Montreal in poorly iced cars, that it be shipped from the factories to a central refrigerator, where it could be properly frozen, and if the steamboat companies trading between Toronto and Montreal could be induced to furnish refrigerator compartments in their boats, not only for the carrying of butter, but also for cheese and other perishable products, it would tend to reduce the freight rates, and the competition thus established would tend to insure to shippers a much better service. The products could be unloaded from the smaller boats directly into the ocean steamers at Montreal, which would save cartage and prevent the breaking of boxes, the package would be much cleaner, and the length of time required as compared to shipping by train would be very little. The butter should be shipped from Canada to England at a temperature not exceeding 20 degrees F., and should go at once into consumption instead of into cold storage, as is too often the case, to be held for a rising market.

Briefly speaking, the chief defects of Canadian butter are its poor keeping qualities, excessive moisture, and lack of uniformity; stronger boxes are required, and a better quality of parchment paper.

If we are to improve the quality of our butter, and make the industry more profitable to the Canadian farmers, we must, first of all, renovate the factories and thoroughly instruct the makers, and impress upon the salesmen the advisability of selling their butter weekly. Under the improved conditions as shown by the figures I have quoted, each individual creamery woud be more than repaid for the expense incurred in building suitable storage and adding the necessary machinery. Then, with suitable transportation facilities, it would be an easy matter to improve the quality and reputation of our butter, which would stimulate a greater demand, increase the price, and enable us to compete successfully with the products of other countries.

Mr. Ruddick: Do I understand you to say there was not sufficient nor suitable accommodation for butter?

Mr. Smith: Yes, for Liverpool and Montreal butter frequently has to lay over in Montreal for one week or two weeks waiting for the next boat. And I might also say that the steamship companies are much more willing to take butter from the Montreal cold storage than they are to take it from the west. Large quantities from

the west are in such a heated condition that this heats their compartments. At times during this season butter has had to remain over a week and sometimes two weeks before we could get space.

Mr. Ruddick: I think you will find the reason for it having to lay over was that there was such a small quantity that it would not fill the space. The steamship companies could carry twice as much butter last year as was offered them.

Mr. Smith: Our experience with regard to that is that the boats were filled up, and we could not get space, and for that reason the C.P.R., I believe, are putting out additional steamships.

Mr. MacLaren: What is your experience with the butter when it arrives in England; have you had any trouble with it lying on the docks exposed?

Mr. Smith: We have not been troubled with that.

Mr. MacLaren: What did you find with regard to that, Mr. Ruddick?

Mr. Ruddick: We found it had been left on the docks in Glasgow as long as eleven days. We have made inquiries with regard to nearly every cargo, and it has run from two to eleven days before the butter is taken away. We have taken this matter up with the produce merchants of Montreal, and also with the Association at Glasgow and London, and I hope we will have some improvement before another year.

A Member: How about Manchester and Bristol?

Mr. Ruddick: They handle it better at Bristol than any other port. The Great Western Railway there have put on refrigerator cars to carry the butter from Bristol and they have been handling it a good deal better. They land it from the ships into the refrigerator cars.

Mr. MacLaren: Do you not think it would be a good thing to pass a resolution in connection with that?

Mr. Ruddick: The Government cannot do anything; we have not any control over the people on the other side.

Mr. MacLaren: It might influence them over there. (Applause.)

RECENT INVESTIGATIONS REGARDING THE FACTORS THAT CONTROL WATER-CONTENT IN BUTTER

By Frank T. Shutt, M.A., F.I.C., Chief Chemist, Central Experimental Farm, Ottawa.

It is not necessary, I am sure, to offer any words of apology or explanation in bringing before you at this Dairy Convention the results of this important investigation, recently carried on in the laboratories of the Experimental Farm, Ottawa. Ever since the legislation in England to the effect that butter to be accounted genuine must not contain more than 16 per cent. water, there has been keen interest in this subject of water-content, both by buttermakers and by butter exporters. This law was passed some two years ago, and at the last session of our own Federal Parliament a similar law was passed, so that we have as regards the percentage of water in butter one and the same standard in Canada and England.

You will doubtless remember that in order to allay any anxiety on the part of our butter exporters we, shortly after the passage of the English Act, collected and analyzed over 100 samples of butter from creameries in various parts of the Dominion, as well as from export packages ready for shipment in Montreal. The results were exceedingly satisfactory. There was only one sample that contained more than 16 per cent. water. The average of the 105 samples was 12.31 per cent. An account of this work was published in bulletin form, and copies are still obtainable from the Department of Agriculture, Ottawa.

But there is another phase of the subject. Water is a normal constituent of butter and there must be some relationship between the quality of the butter and the

proportion of water it contains. What are the limits, then, beyond which we can safely go without impairing the quality or the keeping properties of the butter? Further, what are the factors in the manufacture of butter that control the percentage of water, and what are their values?

To obtain answers to these questions—at all events in part, we have recently brought to a close a comprehensive and systematic investigation endeavoring to ascertain more particularly the influences affecting the water-content. These factors, or influences, we found to be of the following nature: The size of the granule to which the butter is brought in the churn; the churning temperature; the temperature of the wash water; the length of time between salting and working, etc.

This work was undertaken with the assistance and co-operation of Mr. J. A. Ruddick, Chief of the Dairy Division of the Department of Agriculture. The butter was made by an expert buttermaker, with special accommodation and apparatus for carrying on such an investigation. Accurate and complete records were made of temperature, of the richness and ripeness of the cream, and of all the other factors to be noted in the manufacture of butter. Churnings were made at high and low temperatures; the churnings were stopped when the granules were the size of clover, of wheat, and of corn, or larger; wash water was used at varying tempertures, and so on. These butters were then carefully and thoroughly analyzed in the laboratories of the Experimental Farm. The results show that there is a very distinct relationship between the "making" of the butter and its composition, especially as regards water-content.

We hope very shortly to have these data in order, and to publish them in detail in bulletin form, thus making them available to every buttermaker in the Dominion. In thhe meantime, I shall present to you in very concise form my deductions from this work, and I invite your attention to the tables of averages upon which I have based my conclusions.

Table I.—Temperature of Wash Water, with High and Low Churning Temperature, Salted 3-4 oz. per lb. of Butter; Showing Percentage of Water and Salt:

Churned at low temperature, 46-51°. 4 samples.				Churned at high temperature, 70°. 8 samples.			
Temperature of wash water.				Temperature of wash water.			
Low 49°.		High 66°.		Low 46°.		High 66°.	
Water.	Salt.	Water.	Salt.	Water.	Salt.	Water.	Salt.
14.02	1.84	14.88	2.29	15.32	1.99	17.11	2.29

Table II.—Size of Graunles; Salted 7-8 oz. per lb. of Butter; Showing Percentage of Water and Salt.

Clover, 2 samples.		Corn, 2 samples.		Overchurned, 2 samples.	
Water.	Salt.	Water.	Salt.	Water.	Salt.
13.59	1.33	14.75	1.42	20.33	3.55

Table III.—Light and Heavy Salting; Worked 2 and 24 hours after salting; showing percentage of water and salt.

Rate of salting.	Worked 2 hours after salting. 4 samples.		Worked 24 hours after salting. 4 samples.	
	Water.	Salt.	Water.	Salt.
½ oz. per lb. butter	13.42	1.25	11.78	1.29
1 oz. per lb. butter	13.18	3.34	11.74	2.32

Table IV.—Salting at Once and After 24 Hours; salted 1 oz. per lb. butter; showing percentage of water and salt.

Salted at once and worked after 24 hours. 7 samples.		Slightly worked; salted after 24 hours and worked at once.	
Water.	Salt.	Water.	Salt.
11.91	3.66	12.51	4.99

Factors Affecting the Water Content of Milk.

1. Other things being equal, it was found with four churnings that the higher the churning temperature within reasonable limits, the higher the water-content.

2. From the results of series II.:

(a) Confirmatory evidence of an emphatic character was obtained of the effect of high moisture-content, and vice-versa, which is confirmed by series IV.

(b) This series also showed that a high temperature of wash water tends to a high moisture-content, and vice versa, which is confirmed by series IV.

Thus, in the butter churned at a low temperature, a difference of 17 degrees in the wash water, namely, from 49 degrees to 66 degrees, effected a difference of .86 per cent. in the moisture-content.

Similarly, in the case of butter churned at a high temperature, it was found that a difference of 19 degrees in the wash water, namely, 47 degrees to 66 degrees, resulted in a difference of 1.79 per cent. in the moisture-content.

(c) This series also showed very plainly that high churning temperature cannot be corrected sufficiently by a wash water of low temperature to reduce the moisture-content to a safe percentage.

In this series, in which two churnings were made to the size of clover seed, two to that of corn, and two to that of walnuts, and larger, data were obtained showing that the larger the granules, the more water in the butter. This is supported by series IV.

4. In two series of experiments (16 samples) churning to the size of small and large granules, respectively, and using high and low temperatures of wash water, it was found that:

(a) A difference of 20 degrees in the temperature of the wash water, from 46 degrees to 66 degrees, increased the percentage of water in the butter, the increase being greater in the case of the small granules.

(b) In a third series, differing from the foregoing only in that the butters were slightly worked before salting and re-worked after two hours, data were obtained confirmatory of the above conclusions.

5. In nine churnings there appeared little or no effect on the moisture-content by varying the length of time from 10 to 30 minutes in which the butter was allowed to drip after washing.

6. From a series of ten churnings, it was found that saltless butter contained slightly more water (0.65 per cent.) than salted butter.

7. Comparing butters salted at the rate of 1-2 ounce and 1 ounce per pound of butter, respectively, the series comprising eight churnings, it was found that the lighter salting gave a butter with somewhat more water (0.24 per cent.) when worked two hours after salting.

However, when a period of 24 hourse was allowed to elapse between salting and working there was practically no difference in moisture-content in the butters salted light and heavy.

The percentage of water in both classes of butter was decreased very appreciably (1.3 per cent. to 1.6 per cent.) by delaying the working after salting. We have further evidence to support this in the conclusions from series VIII., IX,. XI., and XII.

8. In a series of 23 churnings a regular decrease in water-content was noticed (from 14.10 per cent. to 11.91 per cent.) as working was deferred from 2 to 24 hours after salting.

9. In a series of 14 butters comparable with these in table VIII., but slightly worked before salting, a similar decrease in water-content was observed (from 14.02 per cent. to 12.55 per cent.), due to lengthening the period between salting and working.

10 In 42 samples of series XI. it was made evident that slightly working before salting does not materially affect the moisture-content.

This series also showed, as noted above, that increasing the period between salting and working reduced the percentage of water.

11. In comparing seven butters that had been salted at once and worked after 24 hours, with three butters slightly worked, and then after 24 hours salted and worked, it was found that the latter contained the more water, 0.6 per cent.

This series gave evidence corroborative of that of series VII., VIII., IX., and XI., namely, that the longer the period between salting and working, the drier the butter.

Table I.—Churning at High and Low Temperature.

No. of samples.	Temperature	Per cent. water.
2	45° and 54°	13.87
2	62° and 67°	14.90

Table II.—Temperature of Wash Water, With High and Low Churning Temperature; showing percentage of Water.

4 samples, churned low temperature, 46°-51°		8 samples, churned high temperature, 70°.	
Low 49°.	High 60°.	Low 46°.	High 60.
Water.	Water.	Water.	Water.
14.02.	14.88	15.32.	17.11

Table III.—Size of Granules; showing percentage of water.

Clover, 2 samples.	Corn, 2 samples.	Overchurned, 2 samples.
Water.	Water.	Water.
13.59.	14.75	20.33

Table IV.—Varying temperature of wash water with large and small granules.

Number of samples.	Size of Granules.	Temperature of wash water. 46° Water per cent.	66° Water per cent.	Remarks.
2	small	.....	14.32	salted and worked
2	small	12.55	.....	at once
4	large	.....	13.61	
4	large	12.69	.....	
	average	12.62	13.96	
2	large	.....	13.81	Worked slightly and salted.
2	large	13.51	.....	reworked after 2 hours.

Table V.—Length of time allowed to drip after washing.

Time.	10 minutes.	15 minutes.	30 minutes.	30 minutes: Slightly worked before salting.
No. of samples...	2	2	3	2
Per cent. water .	13.77	14.37	14.33	14.03

Table VI.—Salted and saltless; showing percentage of water.

Salted. 1 oz. per lb., worked 2 hours after salting, 5 samples.	Not Salted, 5 samples.
Water.	Water.
13.48	14.14

Table VII.—Light versus Heavy Salting: worked 2 and 24 hours after salting; showing percentage of water.

Rate of salting.	Worked 2 hours after salting, 4 samples. Per cent. Water.	Worked 24 hours after salting, 4 samples. Per cent. water.
½ oz. per lb. butter	13.42	11.78
1 oz. per lb. butter	13.18	11.74

Table VIII.—Working After Salting in Granular Form; showing percentage of water

At once, 17 samples.	2 hours, 7 samples.	4 hours, 2 samples.	24 hours, 7 samples.
Water.	Water.	Water.	Water.
14.10	12.54	12.44	11.01

Table IX.—Slightly Working Before Salting; showing percentage of water.

Salted and worked at once, 5 examples.	Salted: Worked after 1 hour, 3 samples.	Salted: Worked after 2 hours, 4 samples.	Salted: Worked after 24 hours, 2 samples.
Water.	Water.	Water.	Water.
14.02	13.71	13.66	12.55

Table X.—Slightly Worked Before Salting—Salting Without Previous Working; showing percentage of water.

When worked.	No of samples.	Slightly worked before salting.	No. of samples	Salted and then worked.
		Water.		Water.
At once.....	5	14.02	17	14.10
After 2 hours ...	4	13.66	7	13.54
After 24 hours ...	2	12.55	7	11.91

Table XI.—Salting at Once, and After 24 Hours; showing percentage of water.

Salted at once, and worked after 24 hours. 7 samples.	Slightly worked, salted after 24 hours and worked at once, 3 samples.
Water.	Water.
11.91	12.51

Factors Affecting Salt Content of Butter.

1. The data of Table I. appear to indicate that the temperature of the wash water affects the salt-content in the direction of the lower the temperature the less salt.

2. As regards size of granules affecting salt-content, the results of Table II. would show that, other things being equal, the larger the granules the higher percentage of salt.

3. The results of Table III. give strong evidence that the heavier the salting the more salt is retained in the finished product; and this is found to be true whether the butter is worked 2 or 24 hours after salting, though there is a reduction of practically 1 per cent. in the heavier salted butter by allowing the salt to remain 24 hours on the butter before working.

4. In Table IV. the results show that less salt is retained when butter is salted at once and worked after 24 hours than when salted after 24 hours and worked at once

This also supports the conclusion from Table II. that lengthening the period between salting and working reduces the per cent. of salt.

There are also certain conclusions regarding salt-content that we have been able to draw from this work, which will be found of interest to you, for it is certainly of importance to know how we can control the per cent. of salt in butter. The requirements of various markets, as you know, differ in this respect.

I shall merely, in conclusion, say that the chief factors towards increasing our sales of butter in England is greater uniformity in the output of our creameries, and that this uniformity of product can only be obtained by greater uniformity in the method of manufacture in the creamery. This investigation is a step in that direction. We are not, as yet, in a position to say how the water-content affects the keeping quality of a butter, but most probably we shall find that when the water exceeds to any extent 13.5 per cent. this will be impaired. If this be found to be the case, we certainly are in possession, from this investigation, of the knowledge to control it and limit it, within certain small limits, to that figure.

A Member: What was the temperature of the cream?

Mr. Shutt: Where the temperature of the cream is not given, you may take it that it was 58 to 60 degrees. Where I did not mention the temperature of the wash water, it would be between 59 and 44 degrees. The wash water was obtained from an artesian well.

Prof. Dean: Why is it that when the butter was allowed to drip over 30 minutes the percentage of moisture was higher than when it was allowed to drip for ten minutes?

Mr. Shutt: It does seem strange. The butter, of course, is much cooler than the temperature of the room, and the results go to show the higher temperature of the butter, the more difficult it is to work the water out of it; it may be accounted for that the butter was softer, and it may be more difficult to get the water out of it.

Miss Rose: How do you account for the greater difference in the small and large percentage of water in the large and small granules. In the larger it was 20, and the other was about 12 1-2 per cent.?

Mr. Shutt: This is a separate investigation, and you must be careful to bear that in mind. I am not comparing these with them which came before you.

Miss Rose: In Table IV. the large and small granules are both 12 per cent.?

Mr. Shutt: That is very true. There is not very much difference there. We did not make a very extreme test of that, or these figures may have been greater.

Miss Rose: I did not find the same results in my work that you have shown on your chart in getting the moisture from the butter.

Mr. Shutt: You are now giving your own experience. With regard to especially the water. We had all these butters examined by experts, not only on our staff, but in the butter buying trade in Montreal, as regards the percentage of water, and the results are very wide of the mark. Those butters which they considered containing the largest amount of water were frequently those which were the driest. Those butters which have tears and drop water are not always those which contain the most moisture.

A Member: Is there any system for getting at the quantity of water in the butter?

Mr. Shutt: No; we have not been able to discover any method.

EXPERIMENTS IN RIPENING CHEESE AT VARIOUS TEMPERATURES.

By Prof. H. H. Dean, O.A.C., Guelph.

"An experiment is an act designed to discover some unknown truth, principle or effect; or to establish it when discovered." The particular truth which we wished to discover in the experiment was, the best temperature, if there is such, for ripening or what is commonly called "curing" cheese. For this purpose we used six different rooms, kept at various temperatures between 29 degrees and 70 degrees F., in which the cheese were ripened. Having demonstrated that a temperature of 40 degrees F. in an ice cold storage was superior to an ordinary curing room cooled with a sub-earth duct to a temperature of 60 to 70 degrees, in this particular series of experiments but five cheese were made from each vat of milk. One cheese was placed in a room

cooled by means of ice to a temperature of 50 to 55 degrees, and where the moisture content of the air was about 83 per cent. Another of the cheese was placed in an ice cold sorage, where the temperature averaged about 40 degrees, and the air contained 87 per cent. moisture. The remaining three cheese were placed in a mechanical cold-storage, one at about 40 degrees, one at 45 to 50 degrees, and one at 28 to 30 degrees. The percentage of moisture in the air of these rooms averaged 76 for the two moderately cold rooms, and 80 for the one at the low temperature. This experiment was repeated several times during the season.

Before discussing the results, I should like to say something about three other words in the title of my address.

Ripening. The first one is ripening. What do we understand by this term as applied to cheesemaking? It means a change of the insoluble, indigestible, curdy matter known as green cheese into a soluble, digestible form known as ripe cheese. This change is the result of the action of various agents, chief of which is probably rennet. Many conditions affect the changes which take place, but rennet is probably the most important factor in bringing about these desirable changes in green cheese. These changes may be likened to those taking place in a green apple, which gradually becomes more palatable and wholesome as the ripening process goes on. However, if ripening be carried too far, or if it occur too rapidly, the results are not so good. We miss the delicate flavor, characteristic of good fruit. So it is with cheese. The ripening should not take place too rapidly, nor should it be carried too far, if we wish fine flavor in cheese.

Cheese—What is it? It is a concentrated muscle, and energy forming food, especially well adapted for sustaining a man at hard work. Its weakness as a food is apt to be in its more or less indigestible character, especially when not properly ripened or when improperly manufactured. It is very important that Canadian cheese shall not get the reputation of being indigestible or poorly made. The successful marketing of Canadian cheese depends upon these two points. The working man should find in a well-made, properly ripened cheese, the elements which will sustain bodily energy and repair waste muscles, in a cheaper form than can be got in any other food.

Temperature. This is the keystone of successful dairying. No factor enters so largely into every detail of dairying. The thermometer may be looked upon as the most important and helpful instrument in the hands of the dairyman. The cow, her feed, the proper care of milk, the making of the cheese, the ripening of the cheese—all these are influenced to a large extent by temperature. Temperature everywhere plays a very important part in the dairy business. A proper understanding of the effects of temperature in the various processes of cheesemaking is the most difficult and valuable lesson which a cheesemaker can learn.

The Results. These may be summed up in a very few words as regards the quality of the cheese. The highest average scoring cheese were obtained by ripening at a temperature of about 40 degrees F. from the time the cheese were taken from the hoops until ready for shipment. In this particular series of experiments the results were practically the same for both the ice and mechanical cold storage, so far as the quality of the cheese were concerned, though the shrinkage was greater in the mechanical cold storage. In other experiments a slightly better quality of cheese was obtained in the mechanical cold storage. The quality of the cheese in the other three rooms where the temperatures were 28 to 30 degrees, 45 to 50 degrees, and 50 to 55 degrees, was practically the same. There was no apparent advantage in ripening cheese below 40 degrees—in fact, the quality was not quite so good as at 40 degrees. So far as these experiments go, they indicate that 40 degrees is probably the best temperature at which cheese may be ripened for the finest quality.

Incidentally we also noted the shrinkage on the cheese ripened at these temperatures. The cheese were weighed when placed in the rooms, and again at the end of one month. The average shrinkage in all the experiments was as follows :

Per cent. moisture in air.	Temperature for ripening.	Per cent. lost in one month.
87	33–40 degrees F. ice storage	2.28
76	38–40 degrees F. mechanical storage	2.34
76	45–50 degrees F. (mechanical storage)	2.90
80	28–30 degrees F. (mechanicel storage)	1.80
83	50–55 degrees F. (ice storage)	3.60

The results may be summarized thus :

1. A temperature of 40 degrees F. for ripening cheese gave the best results in quality.

2. A temperature of 45 to 55 degrees gave good results at less cost for cooling, though the shrinkage on the cheese was nearly one per cent. greater as compared with ripening at 40 degrees.

3. In this series there was little difference in the quality of the cheese, whether ripened in ice storage or mechanical cold storage, but the shrinkage at the same temperature was greater in the mechanically cooled room. To offset this, there was much less mould on the cheese ripened in mechanical cold storage. They had a much cleaner and brighter appearance when ripened in these rooms.

4. Cheese may be safely boxed immediately from the press and placed in cold storage at 40 degrees F., without and danger of injuring the quality of the cheese, so long as the boxes are clean and dry.

5. The temperature of cheese ripening rooms must be properly controlled, and temperature during the ripening process must not be above 60 degrees F. for good results The results will be much better if the ripening temperature can be maintained at about 40 degrees. After an initial stage of four to six weeks, the ripening process appears to proceed at about the same rate, regardless of the temperature at which the cheese may be held. In other words, after a period of 28 to 40 days, cheese will ripen just about as quickly at a temperature of 40 degrees F. a they will at 60 to 70 degrees F. The quality of the cheese is much better at the lower temperature, and the shrinkage very much less.

6. Owing to the expense of cooling, it will pay small factories to send their cheese weekly to a central cold storage plant, or sell them to dealers who have cold storage facilities. Large factories may operate their own plants, but it is doubtful whether this will pay them. In any case, it is folly to hold cheese in an ordinary "curing room" for several weeks, as it spoils the flavor and texture of the cheese, causes an unnecessary loss of fat and moisture, and tends to injure the good name of Canadian Cheddar cheese.

THE MATERIAL THAT WILL MAKE A FANCY ARTICLE OF CHEESE.

By S. P. Brown, Birnam.

Year by year, as we pass along the line of progress in the development of our every-increasing dairy industry, we find it necessary to dig deeper into its hidden truths, deeper into its unwritten laws, in order to be able to answer the thousand

questions that are continually presenting themselves for solution that we may mature it in the best possible way.

There are, however, very many things in the written law that have been proven beyond the shadow of a doubt, and which every individual in the business knows as well as his name, which we need to observe with extreme care. It is some of these things to which I wish to call your attention, and for a short time to discuss.

The markets of the world are demanding every day the best article of any kind that can be produced anywhere, and the people who can put the best article there in the most attractive style are sure to capture the laurels. These are what we, as Canadians, want, and I believe it is no more than we can accomplish, but we must not ignore the common principle or law that like begets like.

To-day we are after a fancy article of cheese. How are we to get it? It can only be produced one way: everything that goes into that cheese must be of a fancy kind, from the skill in its manipulation and the place in which it is performed, all the way back to the cow, her stable and care, and the man and his skill who milks and cares for her.

The milk is the raw material with which the cheesemaker has to deal, just as timber is the raw material that the wheelwright has to deal with; and no more can a man expect to get a fancy article of cheese from his third-class milk than he could expect a first-class waggon if he gave his waggonmaker basswood to build it from. Paint may cover any kind of wood, and cheese cotton will hold the curd from any kind of milk, but the test comes later.

In order to get out fancy theese there are four essentials:

(1) The cow producing the milk must be perfectly healthy.

(2) She must have an abundance of good, wholesome and nutritious food, and an unlimited supply of pure water, with constant access to salt.

(3) The milking must be done in the most cleanly manner, in a pure atmosphere, and the milk strained immediately into good sound cans that have been thoroughly cleansed by the use of warm water with a little soda in it, and a brush, afterwards scalded with water as hot as fire can make it, and then exposed to the free action of pure air and sunlight.

(4) The milk should then be removed from any stable contamination and set into a suitable tank of water, and cooled down to 70 or below as quickly as possible ,and then covered to keep the air and dust from it, and when placed on a stand along a milk route it should be protected from the sun in a proper manner, a covered stand being preferable. Milk of this sort will make more cheese of a much better quality than that which is allowed to care for itself. I believe that one-half pound of milk can be saved by this method for every pound of cheese made, which, according to last year's business, means a saving of 7,340,228 pounds of cheese, which, at 10c per pound, makes $734,022.80, or nearly half the total cost of manufacturing the cheese in the Province last year. This saving comes directly into the hands of the producer of the milk, and if he can cut away half his cost of manufacture, will it not pay him to adopt improved methods?

We must get closer in touch with the farmer, and help him to improve the surroundings of the milk; help him to see the necessity of adopting new and improved methods, just as it is necessary to adopt them in the factories.

Under such conditions as I have described, the cheesemaker has entire control of the acid development in the milk, which is the prime factor in cheesemaking. He may cultivate and keep a pure culture of lactic acid bacilli of a vigorous type, producing a most desirable flavor of uniformly high quality. It doubles his capabilities to improve his product, and enhance the reputation of our trade.

REPORT OF NOMINATION COMMITTEE.

The report of the Nomination Committee was presented and adopted. The list of officers appears on page 4.

IN MEMORIAM.

Moved by A. F. MacLaren, M.P., seconded by Harold Eagle: "That the Dairymen's Association of Western Ontario, in annual convention assembled, desire to place upon record their sincere appreciation of the services which the late Mr. Andrew Pattullo, M.P.P., a former President of this Association, has rendered to his country, and more particularly for the efforts which he put forth to promote the interest of the dairymen in the territory under the jurisdiction of this Association. The members learned with sorrow of the death of our esteemed friend, and they desire to express to his family their deep sympathy at the loss they have sustained.

"And that a copy of this resolution be forwarded by the Secretary to his brother, Mr. G. R. Pattullo, Woodstock."

Mr. A. F. MacLaren, M.P.: Mr. Pattullo did a great deal for this Association. I remember when he was appointed President, and I do not know of any person who we have ever had that upheld and uplifted the Dairymen's Association more than Mr. Pattullo did. He advertised the Association in his paper, and did everything in his power to forward the interests of the dairymen of Canada, and it is with deep regret that we have to pass a resolution of this kind. The resolution carried.

HON. T. BALLANTYNE AND THE SENATE.

Moved by A. F. MacLaren, M.P., seconded by the President, James Connolly: "That the Dairymen's Association of Western Ontario, in annual convention assembled, hereby endorse the action of the Board of Directors in urging upon the Premier that he recommend the appointment of Hon. Thomas Ballantyne to a seat in the Senate, and confirm the resolution which they at that time adopted, a copy of which was submitted to the Premier.

"This large meeting of dairymen, representing such immense interests in Western Ontario, feel justified in demanding that they should be specially represented in the Senate, and believe that none could so fitly represent them as the Honorable Thomas Ballantyne."

Mr. MacLaren: I think this is a very important matter; I do not think we have representatives enough either in the Senate or the House of Commons. In this great industry we have only two men in the House of Commons, another member besides myself, and I do not think we have a Senator at all, and I think we should impress upon the Premier of this country the great necessity of having some person in the Senate connected with the dairy industry. If we hunted from one end of the Dominion to the other, I do not think we could find any man who has grown up with the industry since 1862, and who has done more to uplift it than Mr. Ballantyne. I was connected with his firm for seven or eight seasons, and I know a great deal of the work he has done. I take a great deal of pleasure in moving this resolution, and I hope the Government of this country will not hesitate one moment, but will see the necessity of appointing Mr. Ballantyne to that position (Applause.)

Mr. Connolly, in seconding the resolution, spoke highly of Mr. Ballantyne as a representative dairyman.

Votes of thanks were passed to the press and the Mayor and Corporation of St. Thomas, after which the convention adjourned.

Dairymen's Association of Eastern Ontario.

ANNUAL MEETING.

The twenty-seventh annual convention of the Dairymen's Association of Eastern Ontario was held in the city of Belleville on the 6th, 7th, and 8th of January, 1904. In spite of the fact that the night before the thermometer had registered 26 degrees below zero, there was a good attendance at the opening session in the City Hall, and this and all the succeeding meetings of the convention were marked by the keenest interest. The hall was tastefully decorated, and several appropriate mottoes were to be seen, among them being one bearing the legend, "Canada Leads the World in Dairy Products." Owing to the immense audiences presenting themselves at the succeeding sessions, however, it was necessary to procure the Opera House, and even the capacity of that large building was taxed to accommodate those who thronged the evening meetings

Mr. R. J. Graham, Mayor of the city, occupied the chair at the opening session, and briefly but heartily welcomed the dairymen present. He considered it a privilege to preside at such a gathering, and more especially over a body of men who had been so long led by his friend, Mr. Derbyshire. He then called upon that gentleman for his annual address as President.

PRESIDENT'S ADDRESS.

By D. Derbyshire, Brockville.

You have no idea, Mr. Mayor, of the great pleasure it is for me to see you occupying the chair. I know well, sir, the great sacrifice you have made, and the great aid you have given to dairy matters, and especially in this section. I know the prominent part you have always taken, and also the prominent part your father took. He was the first President of our Eastern Dairymen's Association, and I feel that it is a great honor to have this meeting held in the city of Belleville. I have often talked with our directors as to the advisability of centralizing our business, and having one meeting at Belleville and one at Brockville for Eastern Ontario. Of course, every division thinks it is very important, but these are the two most important divisions that we have in Eastern Ontario. Both Belleville and Brockville are easy of access. They have the proper accommodation, and they have wise men in both of these sections to take charge of the meetings and make them a success.

This is the 27th annual convention of the Eastern Dairymen's Association, and we are greatly delighted, indeed, to have the pleasure of meeting the dairymen of Belleville section to-day after another successful season. The watchword of our eastern dairymen has for a great many years been "Advancement," and I am glad to say that 1903 has been the banner year. We thank Mayor Graham, the President of your Board of Trade, and the committee representing the citizens, for their royal reception. Everything has been done to assure the success of our annual gathering. It is fourteen years since our convention met in this city. At that time very little general interest was manifested, but to-day we are the most important association in Canada. Our cheese for 1903 will bring $28,000,000, our butter $7,000,000, and our bacon $16,000,000, so our output for the year will be $51,000,000, or $6,000,000 more than in 1902. This means prosperity to every industry in our fair land, and we are now in a better position for carrying on the work than ever before. What means this rapid progress, unless it be the adaptability of Eastern Ontario to the butter and cheese industries? It also testifies to the earnestness and ability of those engaged in their manufacture, aided by this Association and by our Governments. As a result, we stand to-day in the very front, and have made the name of Canada famous. We hope to make $60,000,000 with the coming year.

We employed 21 instructors last season, placing them under the guiding hand of our chief instructor, Mr. Publow, and I must say that the success attending this new scheme has been most gratifying. We have made a more uniform article in all our factories, and greatly improved the quality. We will require 25 instructors this coming season. We must have every factory in Eastern Ontario as well as every dairyman assist us in this work, so that our syndicate system can be properly arranged, and have the right men in charge. Most of the instructors were satisfactory, but some new men will have to be secured, and we ask for your hearty co-operation. We feel sure we can count on this. We want every dairyman to promise that he will improve his cows, stables, and feed, and in every way strive to send a better quality of milk to our factories. We want the factories improved—good drainage, better curing rooms—and see that the maker attends our Dairy School at Kingston.

We want to take another step in advance, and keep out of the way of our competitors. While we have done excellent work, and along the right lines, still there is plenty of room for improvement. The British consumer gives the preference to the goods which please him best, and the price to him is secondary consideration. Danish butter is regularly quoted ten shillings above our Canadian creameries, and in cheese English and Scotch dairies sell eight to ten shillings above ours. Two things bring this about—the handling of the cows, seeing that everything is kept "clean," wholesome food, plenty of pure water, well ventilated stables, clean and warm; the milk delivered to the factories in good shape, and keeping everything "cool," not only in curing rooms, but in transit, until it reaches the consumer. We have made great advancement in these two directions in the past few years. The Dominion Government, under the direction of the Hon. Sidney Fisher, has given us an illustration station for Eastern Ontario at Brockville, which has been of great value, showing the great benefit of curing cheese at a uniformly low temperature. It is having a healthful influence. As a result, a large number of factories have greatly improved their curing rooms; more will follow their example, and I wish I could influence all to do so. We have had refrigerator cars for our cheese as well as for butter, both on our railways and steamships. Our goods were never delivered in better condition, but still we want this system enlarged and improved during the coming season. I feel sure we can count on the Hon. Mr. Fisher to assist us, providing he sees we are trying to improve the quality of our goods. The Hon. Mr. Dryden, our Provincial Minister of Agriculture, has assisted us by giving the usual grant, and Mr. Publow, our chief instructor, has been given every possible help. We all regret Prof. Robertson's illness, but we are glad to say he will be home again fully restored to health, and will, as usual, give us his counsel and assistance. Mr. Ruddick has rendered valuable assistance during the past year, and so we feel that the hearty assistance of both Governments and their valuable staffs is at our service. We should therefore, take hold of the work in 1904 more earnestly than ever before.

With our present opportunities for education and instruction, there will be no excuse for any factory employing an ordinary maker during the coming season, or having on old, open, or poor factory set in the mud with no drainage; no cement floors, with a poor curing room, or not having modern machinery. With every facility for making the finest goods, for no business in Eastern Ontario rests on a more solid foundation, was there ever a time more appropriate for turning over a new leaf than now. With our past experience, with a full knowledge that the production of butter and cheese and bacon is the one industry that is exactly suited to our section, all our energies should be directed to improve the quality of our goods. All should understand, however, that this can only be done by united work, first by every dairyman giving only the cleanest and most wholesome milk, by the factories being up to date, by the makers and all concerned taking a deep interest in making the finest goods only, and by having covers for our waggons that draw the cheese, etc., to the railway stations. We should also have clean refrigerator cars to carry our pro-

duce to Montreal, and steamships fitted properly for conveying the same to the ultimate market. Our transportation service was better last year than formerly, but I do hope that it will be enlarged and improved during the coming season.

If I only had every producer of milk, every maker, and every proprietor of a factory here to-day, I would make one supreme effort to arouse them to a sense of duty. "Improvement all along the line" should be the watchword. We should not make winter cheese, but turn our attention to finest butter from November till May. It would equalize our product, and keep off the market goods that are not fancy, and we would have a better reputation. We must carry on the work of education and instruction this year more earnestly than ever, as we can only hold the prominent place that we have held in the past by united efforts.

Our Dairy School at Kingston has been doing good work, and better than could be expected, considering the accommodation. I do hope that Hon. Mr. Dryden will see that money is placed in the estimates for placing our Eastern school in such a position that we can give the best possible instruction to all who desire it. Give us a large, first-class school. We are pleased that a "Butter Act" was passed last session for preventing the manufacture, importation, or sale of oleomargarine or any adulterated butter We can build up a solid foundation only by making honest goods exactly as represented, and I am sure we will use our influence in that direction.

Can I say anything more that will arouse our dairymen to do better work, to co-operate with this Association and with our chief inspector, Mr. Publow, in the selection of makers; in forming yourselves into syndicates of about twenty-five factories, in selecting your instructors, in fitting up your factories; in securing proper drainage; in beautifying the grounds around your factories, so we can truthfully say at the close of 1904 that Eastern Ontario still leads in the manufacture of cheese, butter and bacon? We have looked forward to the 27th anual convention being held in your beautiful city with great pleasure, as this section has always been prominent in dairy matters. We hope much good will result from this meeting, and that we will all return to our homes determined to help on the forward movement. Once more let me thank you for your kind reception. (Applause.)

Mr. Henry Glendinning, Manilla: In travelling through the country I have noticed that there are a few patrons in nearly every factory who will deliver poor milk —milk that goes in dirty cans—and they will take the whey home in the same cans. A certain amount of butter fat will accumulate around the sides, and the flies get in the whey, and they stick to the can; and when they get this can home they take it to the pump and pour in a little cold water, and wash it around, and then put their fresh milk into it. I have seen that done more than once, and then these people wonder why it is that the cheese of the factory they send milk to is rejected by the cheese buyer. I think the rejection should take place at the very start, and that milk which comes in cans of that kind should be thrown out. I think the main difficulty of this business lies with the man who is producing the milk. Men of this class are most difficult to reach. I venture to say that you have in this County of Hastings men of that stamp, but they are no here to-day, and I do not think you could get them here unless you had a circus or something of that kind. I do not think I will say any more than just to add "Amen" to the President's address.

Mr. William Eager, Morrisburg: I was pleased to hear the President talk this morning on the line of preaching cleanliness in the care of milk and the cans, and everything in connection with the dairy business. There is no doubt about it that is the main secret of success in this important business. If we have everything clean, pure, and in proper condition, we can make fine cheese. The President says that cleanliness and coolness are the two essential things, and he is right. Wesley said that cleanliness is next to godliness, and it appears to me that cleanliness would come first in the dairy business and godliness second, although, perhaps, that is a queer

way of putting it. They should go together, however, and it does seem a pity that in the dairy business so many people are careless about handling the milk. You may say that the system upon which we run the factories is somewhat to blame, because we pay for the milk according to weight; if it were paid for according to its value I believe it would have a great tendency to reduce this carelessness. If a farmer can get a cheesemaker to take his milk, he thinks he has done his part, and that he will get just as much as his neighbor. Now, take the man who is careful, has everything clean about his stable and his utensils, has good, thrifty stock, and who is a thrifty man from start to finish, and if he takes milk to the same factory as the careless or indifferent man, he gets only the same pay, and I do not think there is much encouragement in that for the man who is thrifty. I think it would make a great improvement all over our country, and save a great deal of trouble, if we would adopt the system of paying according to value. I have had a lot of trouble, and sometimes I think the sins of my father are visited upon me, and I am convinced that the proper thing to do is to pay for the milk according to its value. (Hear, hear.) You say it is a very difficult thing to get that introduced, but you know that Governor Hoard told us that anybody, any poor fool, could do an easy thing, but that it takes quite a chap to do hard things. There is no doubt it would be difficult to go ahead and put that system into force, from the fact that people have been trained years and years to do as we are doing now; but if you look at the matter from a fair standpoint you will see readily that to pay by test is the proper way. Everybody who knows anything about it, and who is practical, will tell you that milk in September will make a good deal more cheese according to the number of pounds than it does in June, and why is this? Because it is richer. If rich milk will make more cheese in the month of September, why won't it do the same thing in June? If a man has 3.6 per cent. of fat in June, and another has 3.3 per cent., surely the 3.6 per cent. milk is worth more than the 3.3 per cent. milk. If a man takes good care of his milk and looks after it, and keeps it in good condition, it will get a better test than the man who does not take care of it. I hope some day that every factory all over Canada will be paying for milk according to its value, and when that day comes we will have better cheese and less trouble in our factories. This distrust and suspicion is a bad thing, and we will get rid of all that when we pay by the test.

Mr. John Hyatt, Prince Edward County: Some regret has been expressed that there are not more farmers at this first meeting, but I want to say to you that the leaven is here, and enough of it to leaven the whole lump. The salt of the dairy earth is here, and if they will go out and preach the gospel as given to us by the President, they will purify the whole land. I was delighted with the President's ad- know that we have done so well during the past year. We have passed the Rubicon, and we have captured the market; and the idea now is to hold it. I am like Will Carlton's school trustee: I want to say of the President's remarks, "Them's my sentiments, too."

Mr. John R. Dargavel, Elgin: I did not expect to be called on to address this audience, and consequently I have no remarks prepared; but as one of the directors of this Association I would like to say to the gentlemen present that we are trying to forward the dairy interests to the utmost of our power and ability, and I think every member of the board is imbued with the desire to do what he can to forward the interest in dairying. Most of them have been on the board for some years, and have been learning a good deal themselves. The last speaker thought we had reached the ideal point. I would take exception to that, as I think we are far from it yet, for there is a great deal to do to bring this industry up to the point where we would like to see it. I see no reason why we should be losing 12 to 10 shillings a hundred on our cheese, as we are now losing in this country. There is no reason why we should not get just as good a price as the Englishmen are getting for their cheese. You

can easily estimate what a cent a pound would amount to in this country. If we could get that much more for our cheese—and there is nothing to hinder us from getting it if we will only heartily co-operate—we would add immensely to the wealth of the country, and that is what this Dairy Association is endeavoring to do. During the past year we have introduced what we call the syndicate system, and we hope and expect great things from that system if we can secure the co-operation and support of the dairymen of this part of the Province. Without that co-operation and support, however, we can do very little. We believe that by having an instructor for a limited number of factories, who will give us their whole attention to the improvement of the facilities for making cheese, we can raise the standard of the quality of cheese in this country. The whole trouble we have found is that such a large class of people take no such interest in dairy matters, for so long as they get the milk passed, that is all they care. This class of men are not here to-day, for they don't attend dairy associations or farmers' institute meetings—they stay at home. We hope to yet reach these people, however, and teach them that they owe it to themselves as well as to their neighbors to do better. As you are all aware, the dairy business is essentially a co-operative one. There are a great many links in the chain, and the chain is only as strong as the weakest link. By means of the syndicate system we hope to improve our factories, and we hope also to be able to get legislation so that we will compel factories in the future to have a license. I see no reason why the factories of this country should be allowed to continue in business when they are producing only a poor quality of cheese. We must understand that we are all interested in our neighbors, and in the whole output of the quality of cheese made in Canada. It does not matter how good a cheese half a dozen factories may make, they will only get what the average quality of Canadian cheese is worth, and it is only by adopting some measure that will improve the whole output that we will increase the price, and we ask you all to help us to support that system. We are now asking for just one instructor of thirty factories. We do not expect as much benefit to flow from that as would accrue if we have one inspector to every twenty factories. I would like to see the time when we can employ one inspector for every ten factories. If we could do that, that inspector would be able to go to every patron and see that he was handling his milk in a proper and sanitary way. We want the dairymen of this country to assist us in this matter. There is no man who has not got his influence more or less, and we want every man to use that influence to further this great industry, because it means everything to this country. Why is it that Danish butter brings larger prices than our butter? It is simply because they have had legislation there, and they are made to take utmost care of their milk, and, as the President said, the great watchword of the business is "Clean and Cool." In Denmark when the milkmaid goes out to milk she dresses up. Instead of putting on any old clothes that she thinks will do to milk, she goes and puts on clean, new linen, and she cannot go into the stable to milk the cows until she is dressed up, instead of being dressed down as they do in this country. And that is what we want to bring to the notice of our people here—that they must be cleaner, and take better care in every way of this most important product. We must get them to know that instead of washing their cans with some old rag they must scald their cans, and clean them with a brush. We want the patrons to be loyal to their factories, and we want every one of them to feel and know that it is their duty to themselves and their duty to their neighbor to reproduce the best product they possibly can.

Mr. J. A. Ruddick, Chief of Dairy Division, Ottawa: I have listened with much pleasure to the addresses we have had this morning, and I was particularly struck with one remark made by the last speaker. If you will just let that remark soak into your memory, and pay heed to it, it will be of as much use to you as anything else you will hear at this convention. That was when he referred to the factory, and said that it was the average quality of the cheese throughout the country that settles the price

and that every man is interested in building up the average quality of every factory, and is interested in having every factory do better and get on a higher plane, so that they will raise the general standard of quality. Every patron of every factory is interested in seeing that his neighbors send in the milk in the best possible condition; and if every patron all over this country would take an interest in this matter, it would soon settle the question of milk supply. It is not the skimming and watering of milk that does so much harm. I believe that for every dollar that is lost to the patron by skimming there is $100 lost through inferior quality of milk. (Hear, hear.) If the cheesemakers thoroughly understood this they would no more like a man to send his milk to the factory when it has been rejected by another factory than they would like a man to go into their house suffering from an infectious disease. There is one other thought I want to refer to. You heard from our President the great progress we have been making, and how the exports of both butter and cheese have increased during the past two years. If I was asked to name one thing that has contributed more than anything else to this great increase of production at high prices I would say it was the remarkably cold weather we have had during the past two summers. I believe that that has had more to do with it than anything else. We have made progress along the line of manufacture, and in our factory building. Railway service has been improved; but I think the one great thing that has contributed to building up our production has been the cold weather, which has enabled the cheesemaker to carry the cheese at a few degrees lower temperature. That is the secret of the whole thing. It would be impossible to estimate how much money that has been put into the pockets of the farmers of Canada during the past two years. I have heard it stated that it has put at least five or six million dollars. I am glad to see so many out this morning. It is unusual, I think, to see so many at the opening session, and it speaks well for this convention, and it promises much more success. I have no doubt we will have good meetings.

Mr. Thomas Anderson, Belleville: I told the President if he would bring the convention to Belleville we would give him one of the best meetings he ever had, and I thought we would be able to have you all feel that you have had one of the best meetings in the history of the Association. The President told us last fall that our cheese was bringing us a million dollars a week. Now, if we do as we should do, take great care of our cows, milk, and the factories, I see no reason why during 1904 it should not be a million and a half. I never milked cows till I was 25 years of age, but since then I have handled cows and worked with them, and tried to make a success of dairying, and I know if you handle them right you can make money out of them. I have had cows that produced only $15 a year, and I know that by handling them right and improving them you can make them produce $75 to $80 a year. There will be no trouble in increasing the output to a million and a half a week if we take hold of this matter in the right way.

COMMITTEES.

The following committees were then appointed:

Business: Mayor Graham, Mayor-elect Chown, R. G. Murphy, and J. A. Kerr.

Nominations: J. R. Dargavel, Jas. Whitton, and Wm. Edgar.

Legislation: Edward Kidd, M.P., T. B. Carlaw, E. Gus Porter, M.P., and R. G. Murphy.

THE SELECTION, CARE AND FEED OF THE DAIRY COW.

By Henry Glendinning, Manilla.

If a reliable annual record were kept of the quantity and quality of milk given and the food consumed by each cow, we would come within very reasonable bounds of the value of such an animal; but records are the exception and not the rule. The dairyman who keeps such a record will frequently have cows for sale, but he is under no obligation to the purchaser to produce the record with an affidavit attached certifying to its correctness. The purchaser of dairy cows has to depend upon his knowledge and judgment in selecting the same. Experience has shown that we seldom have a first-class dairy and beef cow combined in the same animal. As man has developed these two different types of animals, nature has been at work building up a framework, and clothing it with a covering of flesh, nerves, hide, and hair that show a marked difference in the conformation of the two animals. The beef animal will show the broad, blocky, fat form, while the dairy animal will show the long, wedge shape, with a highly developed nervous temperament.

Points of a Dairy Cow. In a good dairy cow there is a feminine look that is very characteristic. There is no heaviness of the front quarters or thickening at the neck that would indicate the slightest masculinity. There is no advantage in having a cow very large, unless with size we have increased production. The form should be loose, with fine bone, but there should not be any appearance of weakness, due to fineness. The skin should be soft and comparatively thin, covered with short, soft and silky hair, and oily to the touch; the lining of the ear, the region of the udder, inside the thighs and below any white spots of hair, of a golden color. The head should be long and lean, with a feminine appearance. The mouth should be broad and strong; the eye should be full, mild and bright, which indicates a kindly disposition and a vigorous circulation and good health. The horn should be inclined to be small and fine, nicely set on the head. The poll should be prominent, with the forehead broad and full, showing strong development of brain. The neck should be fine, slim, carrying the head in a graceful manner, and joined to an equally thin and bare shoulder, with withers sharp and open.

The performing powers of the dairy cow depends largely upon the depth and capacity of the barrel, so as to give room for the full play of the heart, lungs and stomach. The backbone should be prominent, open and strong, for through it and under it run the nervous and circulatory systems.

The hindquarters should be lean, with the hip bones prominent and wide apart; the thighs should be long, thin and incurving, with a high, wide, spreading escutcheon. The udder should be long, wide and plastic; when empty it should appear to consist of folds of soft, pliable skin. The hindquarter should be attached high up, and extend well forward. Teats, evenly placed, and just large enough to fill the hand. The milk veins should be large and branching, with milk wells, through which the veins pass into the body. If we get these several points combined in one cow we may be pretty sure of getting a good milker.

Good Care Essential. As to the summer care of the cow, nature has generally made a generous provision in the way of pure air, and giving her an opportunity of cleaning herself of the old hair, and by pawing the soil over her back, the grit thrown on the body will destroy all vermit. This, followed by the warm rain, leaves the skin in a healthy condition.

The horn fly gives the greatest trouble. Our most successful remedy has been to put the animals in the stable and spray with crude petroleum. (Be sure to get the flies in the stable also.) This is a cheap and effective remedy, for wherever a little of the spray touches a fly, it is sure death.

In winter the stable should be warm and well ventilated, with plenty of light. If the ceilings, walls, partitions, and mangers are whitewashed, it will help the light and add much to the sanitary conditions. If the hair is clipped from the tails, thighs, and

udders, they will be kept clean much easier. The currycomb and brush should be used on cows every day, as this adds much to their contentment and general health.

Feeding. The cow should be fed a proper ration. It should be fairly bulky, palatable, succulent, free from any objectionable flavors that would affect the milk; it should contain the proper nutrients for the production of milk and be cheap.

The following tables show the digestible nutrients of feeding stuffs per 100 pounds concentrates:

—	Dry matter.	Ash.	Protein.	Carbo-hydrates.	Fat.	Nutritive ratio.
Wheat	89.5	1.8	10.2	69.2	1.7	1: 7.1
Barley	89.1	2.4	8.7	65.6	1.6	1: 7.9
Rye	88.4	1:9	9.9	67.6	1.1	1: 7.0
Corn	89.1	1.5	7.9	66.7	4.3	1: 9.8
Peas	89.5	2.6	16.8	51.8	0.7	1: 3.1
Oats	89.0	3.0	9.2	47.3	4.2	1: 6.2
Buckwheat	87.4	2.0	7.7	49.2	1.8	1: 6.7
Field beans	85.5	3.1	23.0	50.2	1.4	1: 2.3
Flax seed	90.8	4.3	20.6	17.1	29.0	1: 4.2
Sunflower	92.5	2.6	12.1	20.8	29.0	1: 7.4
Wheat bran	88.1	5.8	12.2	39.2	2.7	1: 3.7
Wheat shorts	82.2	4.6	12.2	50.0	3.8	1: 4.8
Linseed meal	90.8	5.7	29.3	32.7	7.0	1: 1.6
Cotton seed meal	91.8	3.5	37.2	16.9	12.2	1: 1.2
Grasses (green).						
Kentucky blue grass	34.9	2.8	3.0	19.8	.8	1: 7.2
Orchard	27.0	2.0	1.5	11.4	.5	1: 8.0
Red top	34.2	2.3	2.1	21.2	.6	1:10.0
Timothy	38.4	2.1	1.2	19.1	.6	1-17.1
Clover (green).						
Red clover	29.2	2.1	2.9	14.8	1.7	1: 5.6
Alsike clover	25.2	2.0	2.7	13.1	.6	1: 5.3
Lucerne clover	23.2	2.7	3.9	12.7	15	1: 3.5
Hay.						
Red clover	84.7	6.6	6.8	35.8	1.7	1: 5.6
Timothy	86.8	4.5	2.8	43.4	1.4	1:16.7
Staw.						
Oat	90.8	5.1	1.2	38.6	1.8	1:33.1
Pea	84.0	4.5	2.9	33.4	1.5	1:12.0
Silage.						
Corn silage	20.9	1.4	.9	11.3	.7	1:14.4
Sugar beets, feeding	13.5	.9	1.1	10.2	.1	1: 9.4
Mangels	9.1	1.1	1.1	5.4	.1	1: 5.1
Turnips, Swedes	11.4	1.2	1.0	8.1	.2	1: 8.5
Carrots	11.5	1.0	.8	7.8	.2	1:10.3
Roots.						
Parsnips	11.7	.7	1.6	11.2	.2	1: 7.3
Potatoes	21.1	1.0	.9	16.3	.1	1:18.3
Rape	14.0	2.0	1.5	8.1	.2	1: 5.7
Field.						
Pumpkins	19.1	.5	1.0	5.8	.3	1: 6.5
Milk.						
New	12.8	.7	3.6	4.9	3.7	1: 3.8
Separator	9.4	.7	2.9	5.2	.3	1: 2.0
Buttermilk	9.9	.7	3.9	4.0	1.1	1: 1.7
Whey	6.6	.4	.8	4.7	.3	1: 6.8

The first column of figures shows the dry matter in the feed stuff; the second the ash or mineral matter which is made use of by the animal to produce bone and assist in digestion. The third is the protein, which goes to make the muscle, or lean meat, the tendons, the hair, and the casein of milk; the fourth the carbohydrates, which is converted into fat, and gives heat and energy to the animal; the fifth the fat or ether extract, which is also converted into heat and fat; the sixth and last column is known as the nutritive ratio, which shows the relation between the protein and the carbohydrates and fat combined. A good ration for a dairy cow would be a nutritive ration of one of protein to about five and one-half or six of the carbohydrates. Perhaps many of the people present at one time or another have found themselves with a number of fresh cows in their stables in the spring of the year with a short supply of succulent food, but with plenty of hay and grain, and a plentiful supply of fresh water. By feeding all the cows would consume of good hay, ground oats and peas, mixed with bran, a good flow of milk might be obtained. But a day comes, in the latter part of May, when the cows are turned out to grass, and all the expensive feed in the form of grain is taken from them. In a couple of days, after the novelty of the situation has worn off, they give more milk on the plain, simple grass than they did in the stable on the highly concentrated and expensive foods. Why is this? The cows had in the hay the same nutrients as the grass contained.

In the first place, the fresh grass was very palatable, and they consumed large quantities of it. Secondly, it was very succulent, and required but very little energy to digest it. The cow had more net energy to put into the production of milk, and the nutrients of the grass were about properly balanced. Thus we have in pasture such as the blue grass and white clover an ideal food for cows, cheap, palatable, succulent, and containing all the elements required for the production of milk.

We cannot always have June conditions for our cows, but we should aim to come as near them as possible. Warm, comfortable, well-ventilated stables, with plenty of light, and a constant supply of fresh water are essential. The importance of this will be more clearly understood when we consider that 80 per cent. of the blood, 87 per cent. of the milk, and about 50 per cent. of the whole animal is water, and that it is by the agency of water the food is carried through the system. See that the cows have a constant supply of pure water before them all the time. It is a frequent sight in the winter to see a herd of cattle crossing the fields from the barnyard to some creek to drink from a hole cut in the ice. The strongest animals drink from 60 to 70 pounds of cold water, only slightly above freezing point; the younger and weaker animals stand shivering in the cold and perhaps drink very little or none at all. Now, the first thing a cow will do is to raise the temperature of the water just taken from about 32 degrees Fahrenheit to 102 degrees, which is the normal temperature of the cow. This is done at the expense of the food consumed, which means a great loss in the production of milk.

The winter ration should come as near the summer ration of grass as possible; it should be palatable, bulky and succulent. Corn silage or roots, such as sugar beets or mangels, fed in conjunction with well-cured clover hay, will supply succulency and bulk, but we will have to add some more highly concentrated food containing more of the protein element, such as wheat, bran, pea meal, ground oats, or oil cake to balance up the ration. A good ration for a cow of about 1,000 pounds in weight, and giving from 20 to 25 pounds of milk, would be:

Corn silage	40 lbs.
Clover hay	10 lbs.
Pea meal	4 lbs.
Wheat Bran	4 lbs.

To feed successfully we must be economical. This is perhaps where the skill of the feeder is most required. It takes a large amount of the food consumed to maintain the animal, and it is only the food that the cow digests and assimilates over the

maintenance point that she converts into milk. Suppose some of you farmers had a barn full of grain to thresh, and when the machine came into the yard you said to the engineer, pointing to the pile of wood, "That is all the wood I have for fuel, and I want you to be economical with it." Now, if the engineer got up about a 35 pounds pressure of steam in the boiler and the machine started, the first few sheaves put through would stop the machine. You would be apt to rush out and ask the engineer what was the matter. He would reply that you wanted him to be economical with the wood. You would tell that man that he did not know his business; to put in the wood and get about 85 or 100 pounds pressure and get the threshing done and move on to the next place. There are too many dairymen in this country dairying with about a 35 pounds pressure. On the other hand, it would not have been economical for that engineer to have fastened down the safety valve and raised the pressure so high that the steam gauge would not indicate the pressure, simply to enable a little more grain to be put through in a shorter time. It would be likely to cause a breakdown. So it is with the cow. If we overfeed, and the cow loses her appetite, or falls ill from being forced to a point too high, it will take a long time for her to get over the high pressure in feeding.

A Member: Would you recommend a Jersey cow for cheese business?

Mr. Glendinning: Well, no; I do not know that I would. I certainly would not recommend a Jersey cow for the cheese business where they pay so much for 100 pounds of milk. I think it would be apt to bankrupt the man with the Jersey cow.

A Member: Would you select a Holstein cow?

Mr. Glendinning: I do not like to say anything about breeds.

The President: If you want to get all the milk you can, and send it to the factory where they are taking it by weight, I would get a Holstein that would give four pails of milk if I could get it. As long as I was selling by weight I would get the most milk I could. I would not go in for a Jersey cow if I was in the cheese business. I would go in for a cow that would give a large quantity of milk and consume a large quantity of food. Go in to make money.

A Member: That would be a Holstein.

The President: There are a great many men here who would rather have the Ayrshire. It is just like selecting a wife. The wife that would suit me would not suit you, although she ought to, because I would select a good one. (Laughter.) You have got to satisfy yourself that you have the right cow, and you have to love that cow, and give her the jealous care you would give your wife, and she will do business for you.

A Member: Which is the best way to pay, by weight or test?

The President: If the patrons want to go by weight, go in to get cows that will produce the most milk; if you want to pay according as you should and do the square thing, you will go in for the Babcock test. I would run my business the best possible way in each factory.

A Member: Have you got them down so that you know it is right to pay according to the Babcock test?

A Member: When did you get it there?

A Voice: We have it right there now.

A Member: You spoke about the milk veins being large, would you make any difference between the numerous small milk veins or a less number of milk veins and larger?

Mr. Glendinning: When you say numerous small milk veins, what do you mean? I do not think you will find more than three. I have never found more than one milk vein on each side of the cow, and then you have branches. Have you ever found more than one on each side?

A Member: No; they have been branches.

Mr. Glendinning: I do not think it would make any difference whether it

was a large one or whether there were branches from there. Some people are under the impression that these milk veins contain milk. They contain blood like any other veins of the animal, but we require these large milk veins there to produce a large quantity of milk. The cow secretes most of the milk at the time the cow is being milked, and, therefore, it is very important that you should be very kind and careful with the cow at that particular time. If she is abused and made nervous she fails to secrete milk, and the consequence is the farmer is out, and she will turn that milk perhaps to fat on her body.

A Member: You said the veins contained blood; does the bag contain milk?

Mr. Glendinning. It contains a great deal more blood than it does milk. You take a large udder of a cow. Of course, it looks very much like as if there was a very large quantity of milk in that udder, but if a cow happened to be shot or killed instantly, and you took and opened her, you would find very little milk. Perhaps some of you have set down to milk a cow, and you would get a little milk at the commencement quite easily, and then you have said the cow failed to let down her milk. When you had milked out that milk that came easily you practically had taken all the milk that was in the udder, and then it was not until you continued your manipulation some time that she began to let her milk down again, and that was the time she commenced to secrete the milk, so that we know that there is not a great deal of milk in the udder.

A Member: Can you get more milk by rapid milking or slow milking?

Mr. Glendinning: I think it is generally conceded that rapid milking will give more milk, and the same milker to milk the cow each time, as near equal times as possible, that is, twelve hours apart.

A Member: If there is no milk in the udder, how is it a cow will leak her milk?

Mr. Glendinning: I do not say there is no milk in the udder. There is always a little milk in the udder, and, of course, she leaks her milk as she secretes her milk. If you milk a cow dry you can go back five minutes after and milk some more out of her. There is always a little milk in the udder.

A Member: How can you tell that a cow is a good milker when you go to buy her?

Mr. Glendinning: There are cows that appear to have a very large udder, but when you sit down and milk them and when you get through the udder is about as large as when you commenced, I think that is the cow you are after.

A Member: Yes.

Mr. Glendinning: That cow has a fleshy udder. Sometimes you get a cow that has not a large udder, and you get a large flow of milk. The kind of udder we want is one that has little pleats or folds all down the udder. A large udder of that kind is what you want, and a large, fleshy udder is one that we want to get as far away from as we possibly can.

A Member: Is there any application you can use to stop a cow from leaking milk?

Mr. Glendinning: We have two classes of cows, one that gives her milk too easily, and others that do not give it easily enough. The reason a cow leaks her milk is that the opening in the teat is too large, and there is not contraction enough to draw the point up. I have seen applications tried to remedy the defect.

A Member: Does it follow that because a cow leaks her milk she is an extra good milker?

Mr. Glendinning: No; I do not think it follows. I think it is constitutional. Very often good cows do leak their milk.

A Member: How would you feed the dairy cow?

Mr. Glendinning: I am going to touch on that later.

A Member: Do you think that if a cow is a good milker, and leaked her milk, that by milking her three times a day it would help her?

Mr. Glendinning: I think it would help, but I do not think it would cure her altogether.

A Member: Do you not think that that cow's udder becomes full, and after times she gets tired of resisting and gives way and the milk comes?

Mr. Glendinning: There may be something in that.

A Member: Do you know of any method of making a hard milking cow to milk easier?

Mr. Glendinning: Yes; these milking machines work that fine, but I suppose we have not very many milking machines here. I cannot say it is a great success, but I have seen a cow helped in this way: by taking little pieces of bone or celluloid and making it into a little point, and back of that you have a little notch, and you shove that up into the cow's teat and allow it to remain there until you are going to milk. Of course, the difficulty is that sometimes it will slip out.

A Member: I have tried that, and found that if I left it in from one milking to another, she would milk too easy. I have found two hours long enough to leave the plug in.

A Member: Was the benefit a permanent one?

A.: She gradually got harder afterwards, and came back to nearly her natural condition.

A Member: What effect will the use of vaseline have on hard milking cows?

A.: I do not know; I have never seen it tried. I suppose it would soften the point of the teat.

A Member: Is there any remedy for a cow that will hold her milk—sometimes give a quart, and sometimes give a whole pailful.

Mr. Glendinning: I have an idea when a cow holds her milk she has been abused—either run by a dog or had an application of the milk stool on her ribs. You should teach your cows to love you.

A Member: Where such is not the case?

Mr. Glendinning: I am speaking of what I have seen. There are some bad-tempered cows. I suppose they are like bad-tempered people that are bound to be awkward and crabbed. If you beat a cow or abuse her she will not milk as well as if you treat her kindly.

A Member: Do you say a cow will not hold up her milk?

A.: I say the cow does not secrete her milk. What we call holding up means that she does not secrete it; if she secretes her milk, you can draw it away.

A Member: Do you find any difference in the amount of milk a cow gives if she is eating when you are milking?

Mr. Glendinning: I think that is very much a matter of habit. I know there are some people who make a habit of giving their cow something to eat when she is being milked, and if you fail to give that cow something to eat at that particular time, she will fail to give you milk; but with a cow that is not trained that way it will not make any difference. I prefer having her pay attention to me when I am milking, and not to have her eating.

A Member: Will you prefer a regular time to milk morning and evening, or would you do it haphazard?

Mr. Glendinning: I stated in the first part of my address that the cow should be milked twelve hours apart as near as possible, and the cow should be milked by the same individual every time.

A Member: How do you manage where there are flies underneath the cow?

Mr. Glendinning: We use a regular spray pump and go all over the cow; one man works the pump and another the hose.

Mr. Brown: How often do you find it necessary to use the oil spray?

Mr. Glendinning: When they are very bad, three times a week. About twice a week, as a rule—it depends on the weather. If you have your pump right there, and

get it filled with oil, it does not take very many minutes to set it to work. We do not put it on thick enough to make it objectionable. Our object is more to kill the flies than anything else.

A Member: What price do you pay for the oil?

Mr. Glendinning: It costs $5 a barrel of 42 to 45 gallons, barrel and all.

A Member: Any danger of that petroleum tainting the milk?

Mr. Glendinning: Not in the least. We generally do it in the morning after the milking is completed, and at nights you cannot smell it. We do not plaster it over the cow, we merely kill the flies. We apply it along the back and on the horns more particularly We find that if we have killed all the flies in connection with the herd, that there will not be many flies around there. If you are running young cattle with the cows, put the whole lot under and spray them all.

A Member: Do you use a closed nozzle, the same as the fruit growers?

Mr. Glendinning: Yes, but finer. We have what they call a No. 0 spray motor that is strictly an oil pump. Perhaps some of you have these double spray motors. We got this pump for spraying over the bark louse, and we have used it ever since for spraying the cows with very good effect. We use a tank that holds about four gallons of oil, and we carry it around.

A Member: What temperature should the stables be kept at during the winter?

Mr. Glendinning: That is a pretty difficult question to answer. I suppose as near summer temperature as possible, because it is during the summer the cows give us the best result. If you raise the temperature to 65 degrees or 70 degrees, you will generally have your stable foul. It would be a very difficult thing to keep a stable at 50 degrees this last week. However, I think we should keep our stables at an even temperature all summer, about 60 degrees, and by so doing we would get the best results.

A Member: How do you ventilate?

Mr. Glendinning: That is one of the most difficult questions we have. There are very many systems of ventilation, but I do not know that any one of them is perfect. I think one of the best systems is where you have a pipe coming from the outside and passing along in front of the cows, and have an outlet of air in front of each cow. If we had a drain or sub-earth duct so that we could carry the cold air up for some considerable distance, I think that would be a help; it would warm it up before it entered the stable.

A Member: Can you tell us a little about letting cows out in the winter?

Mr. Glendinning: My experience is that a cow does not require much exercise when it is giving a lot of milk, and we do not make a practice of letting our cows out. I will give you an experience I had two years ago. I hired a man to take care of the stock, and I put him in charge while I was out on institute work. He had been there a couple of weeks, and I went to the stable Sunday morning, and he said: "Say, Boss, don't you think it would be a good thing to let these cows out and give them a little exercise?" He had always worked for men who gave their cows a good deal of exercise; they generally had a straw stack. I said I did not think they needed it. Well, he thought they would be better, and I thought it was an opportunity to teach him a lesson. There were two rows of cows, eight in each row, fifteen giving milk, and one dry, and I said, "You can let the cows out if you have a mind to." It was a nice, warm morning, and the snow was melting a little outside. He said, "I will let this stable out first." "No," I said, "turn out both these rows. He said, "There will be an awful run; we will never get them in." He turned them out, and the cows backed out, and went out just the same as they would if they had been turned out every day, and every one of them went out in that way till we came to the dry one, and she went out with a jump; and when the others saw her running, they thought they would take a run, and they ran across the barnyard four rods, and then they began to stop and look around as much as to say: "Well, this is not very ladylike," and every one of these cows went into the stable inside of ten minutes. I told him to let

the doors remain open, and not drive any of them in, and they all went in except the one that was dry. That was about the first of February, and these cows had not been out of the stalls from the fifth day of December. I think if the dairy cow required a good deal of exercise these cows would have required it. They were giving a good lot of milk and were well fed. I have not very much hesitation in saying the dairy cow does not require very much exercise. She has a great deal of exercise in working up the product she consumes in the milk.

A Member: Do you chain the cows?

Mr. Glendinning: The cows are tied to stanchions with chains.

A Member: Which is the best stable—stone, concrete, or frame?

Mr. Glendinning: I do not know. Some men think frame houses the best, others think a concrete one; another thinks a stone stable is the best; but I think a great deal depends on where you have your stables. In the first place, you want to have it dry, and if you have a stone underground stable it should not be run back into the earth. They should be up so that there is plenty of air and light, and they should be entirely free from dampness and well ventilated. I think either one is good enough if well lighted and ventilated and kept warm.

A Member: Clover balances itself, but it will not help balancing the corn?

Mr. Glendinning: Yes; clover is just about the proper balance, but for your bulk ration give a mixture of clover hay and corn silage.

A Member: What would you advise us to use mostly for protein to balance the ration.

Mr. Glendinning: That depends upon which you can buy the cheapest. Oats are just about right. I am not particularly wedded to any one thing. I look carefully into the market price, figure out the cheapest I can buy, and this year I purchased linseed meal. I would like a little cotton seed meal with it, and we use oil cake or linseed meal; bran is too high. We are grinding oats and peas with it, and oil cake.

A Member: Do you mind giving the weights of the meal?

Mr. Glendinning: I do not think I can give you what we use ourselves. We have a dish of some kind. We put so many pounds into that, and keep as near as possible to that. We weigh that out at first. We vary with the different cows; a cow that is fresh gets more than another, and one that is about dry does not get very much

A Member: Do you wish us to understand that you vary the quantity, but not the proportion?

Mr. Glendinning: Yes; that is it. We vary the quantity. We give corn silage forty pounds, clover hay ten pounds, pea meal four pounds, wheat bran four pounds. If you have not the peas, put in two pounds of oil cake and two pounds of oat chop.

A Member: Can you tell me the proper condition for the corn to be in when it should be taken from the field and made into silage?

Mr. Glendinning: My experience of a good many years is that we get our best silage from corn that is nearly matured—after it has passed the glazing stage and is almost ripe. You will notice it by the cobs turning a little bit yellow, showing a ripened appearance on the outside, and the balance of the stalk yet in a green state. We find when we put it into the silo at that stage we get the best silage, and there is very little danger of having sour silage. All silage is more or less tart, but sometimes it is quite sour. The last two years there has been a great deal of sour silage, and that was especially so in the year 1901. The season was cold, and the corn did not develop, and some of the people in our part of the country put their corn in just about the same date as they did previous years, and the result of that was that they had what I call a cider press. If you go to your silo a week or two after you have put the corn in, you will find pools of juice around your silo, and in cases of that kind you will find that the silage will be decidedly sour in the winter time. I would rather let the corn stand and get frozen than cut it before it had come to the proper stage. In 1901 we did not put our corn in for three weeks after some of our neighbors

had put theirs in. The frost nipped it in the first place, and then it dried up, and that took the extreme moisture out of the stalks, and when it went into the silo we had no waste, and we had just as sweet a silage as any other year, the only difference being that there was not quite as much corn as there was in previous years.

A Member: Would not the freezing take the sweetness out of the corn?

Mr. Glendinning: No; it did not take the sweetness out. Chemists tell us that the only thing that is taken out of the corn is the coloring matter. We found it was as sweet as any other year, and equally as good silage, except that we did not have quite so much corn.

A Member: Do you raise Dent corn or flint corn?

Mr. Glendinning: This year we raised dent corn. I think Compton's is good. I do not think it is advisable to settle on any kind. I would grow the corn that would give me the best kind of grain and mature early.

A Member: How is Stoll's Evergreen?

Mr. Glendinning: I have never grown it for silage purposes. We grow it in the garden for sweet corn, and I think it is an excellent corn. It does not produce quite as much grain as some other kinds, but these sweet corns are excellent. The value of the silage depends upon the amount of grain you put in. I have heard men say they could grow thirty tons to the acre, and when they say that I do not think they know their business, because they are growing a great quantity of long stalks and no cobs. I want the corn cobs first, and the stalks and leaves to follow.

A Member: Do you put the corn in drills or hills?

Mr. Glendinning: We put it in both ways; sometimes we put one field in drills and another field in hills.

A Member: When your corn is not matured, would it not be advisable to cut it and leave it on the ground to mature before you put it in the silo?

Mr. Glendinning: I would just as soon let the frost touch it. If you cut it and leave it on the ground, and if a rain comes up, it gets a lot of sand on it.

A Member: Do you use a corn harvester?

Mr. Glendinning: We did this year, but I prefer the man to the corn harvester.

A Member: Should sugar beets be part of the ration?

Mr. Glendinning: Sugar beets are excellent things to feed a dairy cow and one of the best roots. The carrot is one of the poorest. That is one of the roots that I think has been misunderstood. They do not flavor the milk, and they do not contain a very high percentage of feeding matter. Grow sugar beets or mangels for dairy cows, and turnips for your beef cattle.

A Member: How much better is lucerne clover than common red clover?

Mr. Glendinning: I have generally found that they are pretty nearly alike. I have them both on the chart. There is a little more succulency in the lucerne than the other, and in the bone matter there is .6 of one per cent. more in the lucerne than in the red clover. The value of the lucerne consists principally in the protein or flesh-forming matter, and that is the most expensive and hardest to get. In that way the lucerne is very valuable, because it helps to balance up a great many of the other things we have in the form of straw and hay.

A Member: Do you raise lucerne?

Mr. Glendinning: Yes, sir. I have made a failure, and I have made a success. The first lucerne I grew I had a splendid catch and had a grand crop, and used it for a pig pasture, and in the spring of the year there was practically no lucerne left in the field. We had some lucerne now, and we did not pasture it—we cut it. I think if you pasture lucerne late in the fall you will not make a success of it. Every bite a horse takes out of the crown of the plant means a dead plant. Lucerne and alfalfa are the same thing, only different in name. The analyses of lucerne hay and wheat bran are almost the same thing, and many people will say it is just as good for me to feed a ton of lucerne

hay as a ton of wheat bran. The analyses shows that ; but feed shows a different thing. The difference is this, that lucerne is a course, fibrous plant, and fibre is not as digestible as bran, and the animal takes up more energy to digest that lucerne than it does to digest the wheat bran.

The President : I think that is the best address that was ever delivered to a dairy association. It was a practical address, delivered by a man who is doing this business every day, and understands what he is talking about. I am delighted that there have been so many questions asked. Now, ventilation is the only thing he did not dwell on sufficiently to suit me, and we have a man who is possibly the best posted on ventilation in the country. I will put him on to finish up that part of the question that is an important one for our cheese factories and stables. I have now pleasure in calling upon Prof. Ruddick.

HINTS ON VENTILATION.

By J. A. Ruddick, Chief of the Dairy Division, Ottawa.

I am afraid the President is mistaken when he says I am the best posted man in the country on ventilation, especially of stables, because I have never given that subject any great consideration. I have paid some attention to the matter of dairy buildings, and, after all, the same principles apply. Different conditions alter things somewhat, but there are a few principles which may be applied anywhere, and that is what I propose in a very few words to talk about. One of the first principles in ventilation is, that, in addition to having an outlet for the bad air, we must have an inlet for the pure air. Some people think that when they put up a building, and stick a hole in the roof, they have provided for ventilation ; but that does not necessarily prove that you have ventilation. There must be some ingress for pure air. Of course, where there are doors and windows there is a good deal of air coming in, but that is not a proper way to get ventilation, but means drafts. You all know the danger there is in going down in a well which has been closed up to some extent. There is always an opening at the top, but certain gases are heavier than the air, and they settle to the bottom of any building, room or space ; and if there is some movement like the movement of machinery or animals moving about, it remains there almost permanently unless there is some chance of escaping ; and the same principles apply to a building. We must provide for an inlet as well as an outlet.

There is another thing that we must remember, that because a building is cold, it is not necessarily ventilated. The coldest building you can get into might not be ventilated at all. Suppose you put up a building with very thin walls, say only inch boards, but perfectly tight so that no air can get in, that will not prevent the cold from coming through and the heat escaping. We build the walls thick, and put on one ply of paper and lumber to prevent the interchange of heat and cold in that way ; but in order to have proper ventilation you must have fresh air coming in and the impure air going out It is better to have a number of small ventilators than one large one, for with a large ventilator you are likely to get too much cold air in the one place.

So far as the ventilation of stables is concerned, I do not think I have seen anything more suitable than that which is known as the King system, although I have heard some say that even it has not proved satisfactory. I was in a stable some time ago near Ottawa, and, I think, taking it all around, it is the most sanitary and best ventilated stable I have been in. There are fifty cows kept in that stable, and you can go in there any time, and there is not the slightest disagreeable odor, the air is pure and the temperature is kept fifty degrees. They have practically the King system. Professor King is one of the professors of the Wisconsin Agricultural College. This is a wood building, with cement floors and walls, 2 by 6, studding with double boards outside, and

in along the bottom just about a foot above the floors are the openings about 10 feet apart along each side of the building. The openings are on the outside just above the floor. They come through the outside lumber, and then there is a flue constructed between the two sides up to the ceiling. Inside there is an inch board making the flue inside of the wall, and in that construction the air is warmed by the heat passing through these inch boards. The cold air passes up to the ceiling, and every other one of these flues are opened at the top, and the odd one is carried across the ceiling and opened in the centre of the building, right between the two rows of cows. Along the wall is a row of ventilators carried about five feet above the flat roof of the stable. There is no loft over the stable. There is another row along the centre. There are larger shafts running up the walls between these flues, and every other one of these is opened at the bottom just about a foot from the floor, and the odd one is opened at the top, and there are openings also in the centre to carry off the air from the centre of the building. There must be at least twenty inlets, and as many outlets, for air in these stables, which hold fifty cows; they are about ten feet apart. The air does not come in direct from the outside, but comes in near the ground and passes up and is then distributed, so that you feel no draft whatever. The flues are fourteen inches deep and six or eight inches wide; the outlet shaft is slightly larger. I am not saying that is the best system of ventilation, but I have never been in a stable so well ventilated. I use the milk from that dairy every day, and we never had as nice, pure milk delivered to us. It is so clean and nice that we can keep it five or six days in an ordinary household refrigerator. The opening through the wall is about 4 by 16, exposed to the weather. If the wind is blowing on one side the ventilator on that side can be closed.

A Member: Are these ventilators all around the side?

Mr. Ruddick: On two sides. I would advise anyone who is interested in stable ventilation to try and get a description of the King system. If you write to the Wisconsin Agricultural College you can get a diagram of the system. During the early part of November I was authorized by the Minister of Agriculture to ask Dairy Instructors of the Dominion to come to Ottawa and meet in conference to discuss certain things in connection with their particular work. We were unable to invite all Instructors. We had to confine it to the Chief Instructors in the Province, and those in the employ of the Dairy School. We had three of these meetings there, and I find these conferences very helpful to me in my work, and the Instructors think it has been very useful to them. Part of the work which we did was to consider some resolutions that were submitted by various delegates, and I would like to lay before this conference one or two of these resolutions, because I think they are matters in which you are vitally interested, and I think you should express opinions on them. One resolution was as follows:—

"Whereas, cheese and butter are now almost universally classed as Finest and Under Finest, when purchased from the factories, making practically only two grades; be it resolved that it would tend to improve the quality of both products if there were at least three grades recognized."

I supported that resolution, and I want to tell you why I did so. As a general thing butter and cheese are classed into two grades, that is to say, they are bought on the basis of the finest quality or not the finest. Take the grade we call finest, and I think there is too wide a difference; I think it would improve it to have a narrower classification. It would give an advantage to the factory that makes the best cheese, and butter, and encourage them to increase their standard. In New Zealand they have a Government system of grading. Every box of cheese and butter that is exported has to be inspected and graded before it is allowed on the steamer, and this one thing has elevated the dairy industry of New Zealand. When we started there in 1898 we found there was a large range of quality. Anything that scored 86 points was considered No. 1 grade. One of the first things I endeavored to bring about was to have the standard raised. I found some opposition. Some factories would say, "We have just

managed to get into the first class." But we found it a good thing to raise the standard. There was a larger proportion of the first grade the next year.

A Member: Who would be the man appointed to grade the cheese?

Mr. Ruddick: I do not mean to establish the system of grading. I am not prepared to go that far. That would be a large undertaking for this country. Our butter and cheese are either the finest or not the finest, and I would like to see another grade so that it would be number one, two or three, and there would be different prices to correspond with the different grades.

A Member: Did I understand it would be left to the inspector to say what the grade was?

Mr. Ruddick: It would be just as it is now. The same man who determined whether it is finest or not finest would determine whether it would be number one, two or three grade. Instead of dividing it into two grades, as at present, it would divide into three grades. I say there is a very wide difference in the quality of butter which is graded as finest. Some of it is very much better than others.

A Member: Then there is a reason at once for another grade?

Mr. Ruddick: That is the whole argument.

Mr. Hodgson, Montreal: Do you not think the three grades would encourage making cheese not the finest? There are quite a number of people that if you give them an inch they will take a yard, and if you have only two grades it seems to me it will help them make the finest. Let us try to get them all to make the finest cheese. It is a mighty big subject you are striking at the present time.

Mr. Ruddick: I do not take Mr. Hodgson's view of the matter. I think it would tend to raise the standard of the quality. That has been my experience in New Zealand of different grades so fixed that it would place any cheese or butter in a lower grade than it now has. My idea is that for the very finest there should be a higher grade. I am convinced that there is a too wide range of quality on the one grade. There are a half a dozen grades to wheat. There is a great range in quality of almost all our products. We require something to raise the standard and quality. Some men succeed in just passing their cheese as finest, and they get the same price as the men who have made the very finest. There is not much use talking to such a man, because he will say, "Well, I got the highest price."

A Member: At what point of delivery would you expect this distinction to be made?

Mr. Ruddick: Just the same as it is now. I do not want to introduce any new method

A Member: Then the buyer would be the judge?

Mr. Ruddick: It would not be any different from the way it is now.

A Member: You referred to New Zealand, where they were graded in three different grades. Supposing that was done here, at what point would the distinction be made?

Mr. Ruddick: I have not been supposing that at all. This is a question that we are not ready to discuss. I quoted the New Zealand system for the purpose of showing the three different qualities. Another resolution was:

"In view of the sanitary defects to be met with in a large percentage of our cheese factories and creameries—these defects covering such features as improper situation and construction, particularly of floors, walls and ceilings of making and curing rooms, bad drainage and removal of waste products, with consequent air, soil and water contamination, all tending to a general uncleanliness of the factory and its surroundings—and as such defects have always a tendency to lead to a deterioration in quality, and lowering of market value of products made in such factories, and have as well a tendency to bring our entire product into disrepute. Resolved: that it is advisable, in the interest of our dairy industry, that butter and cheese be made only in factories that are free from sanitary defects and possessed of well-constructed and readily cleaned rooms, pure water, good drainage, and clean utensils and surroundings; and that in

order to secure the above conditions, it is suggested that each cheese factory or creamery should be compelled to take out a Provincial license, to be granted only to those institutions which comply with said conditions."

I would like here to express an opinion on that point. I think that is rather an important question. One man said there is no use talking about licensing factories, because no politician would take his life in his hand by proposing such a measure. I am not prepared to say we are ready for this just now. We will have to consider it for a while. Any politician is ready to give the people anything they want, and as soon as you make up your mind that would be a good thing, and ask the Legislature to give you such legislation you would have no difficulty in getting it. You have only to show it is in the interest of the country at large. It would be a mistake to force a thing of that kind onto the industry before dairymen are ready for it. It will take considerable discussion to bring up what is required. I believe it is a move in the right direction. I do not think we shall reach that sort of condition for a while. For years they have had stringent legislation in Denmark, and recently they have passed an act in Wisconsin which is very drastic on these lines. I believe we are approaching a condition which it will be very much easier to have anything of that kind put into force.

I am told by those who have been over the Province that more improvement has been made in the Belleville section than in any other part of Ontario, and I am very glad to hear that, and from what I have seen and heard I can easily believe that is true, and I think this is a very good part of the country in which to introduce a subject of that kind.

A ROUSING EVENING RALLY.

The evening meeting found every seat in the Opera House filled. A well prepared musical programme interspersed the various addresses, and added much to the enjoyment of the evening. The Belleville Orchestra gave several selections, and solos were sung by Miss M. A. Vermilyea, Miss Maysell Stork and Mr. S. Burrows.

WORDS OF WELCOME.

Mayor Graham: I am sure that it a pleasure for me this evening, on behalf of the City of Belleville, to welcome the Eastern Dairymen's Association. Knowing something of the importance of an association of this kind, I realize the benefits that Belleville will derive from a gathering such as this, and also from having such an able man as our worthy President at the head of this institution.

So far as Belleville is concerned, we feel that the are the head of the dairying business of Ontario, and Ontario is the head of the Dominion of Canada. (Applause.) We feel that we have no small interest in this very important question and in this very important product. Right within five miles of the city was built the first joint-stock co-operative cheese factory in the Dominion. (Applause.) No doubt it is a question of considerable trouble as to where the first cheese factory was built, but I think we can thoroughly establish that, right within five miles of this city was built the first co-operative cheese factory.

My earliest recollection of a convention of dairymen was that of one held in Belleville. We scarcely had a corporal's guard at our gatherings, and you can see by the magnificent audience you have to-night that the people of Belleville are now interested in this very important question. I hope that your stay amongst us will be appreciated by our people. The education we can receive at such gatherings will be of value to us if we put it to practical purposes at our homes. We have with us at this convention

some of the best and most prosperous and most industrious and most scientific farmers of the Province of Ontario, and they will give you valuable hints that will be of benefit to you. We believe in the future of this business, and we hope that you will continue to improve in this district, so that Belleville cheese will always be found, as they are now, to be the best in Ontario. (Applause.) I have much pleasure in welcoming Daniel and his famous Band to Belleville, and I hope you may so enjoy yourselves while here that you will return in the near future. (Applause.)

Mr. C. M. Stork, President of the Board of Trade: I think you will all agree with me that we have listened to a most interesting address from our worthy retiring mayor. It is my pleasant duty, on behalf of the Belleville Board of Trade, to extend to the Eastern Dairymen's Association a hearty welcome, and I also desire to extend a sincere welcome to that distinguished gentleman, the Hon. Minister of Agriculture of Ontario, who is present with us to-night. Not only to him, but also to those other gentlemen who have come from a distance: Toronto, Kingston, Ottawa, Guelph, and elsewhere, to be present here to-night, in helping to make this convention interesting and successful.

I am sure that every one present is waiting in anticipation of hearing the speeches and addresses of these gentlemen on subjects connected with that great industry, the dairying business of Ontario, a business that far exceeds that of every other kind in the country, and I therefore do not feel inclined to take up any more of your time. I think your Association has taken a step distinctly in the right direction in coming to Belleville. Much good is being accomplished by you in imparting a knowledge of a proper application of newer methods of dairying, so that a uniform standard of excellency might be both attained and maintained, and that when Canadian cheese or butter is placed upon the English or any other market it may at all times take the very first place and stand in the very front rank.

I do not think there is anything more that I can say further than to repeat the welcome that we have extended to you, and can say you are doing a splendid work for the country at large; and I hope that when your convention is over, and you take your departure from our midst, you will do so with the feeling that this has been the most successful meeting in the Association's history. We hope, also, it will not be many years hence before the people of Belleville and surrounding district may again have the pleasure of extending to the Association the glad hand of welcome.

Th President: We have with us the Mayor-elect for 1904, and would like to hear from him.

Mr. W. Chown: This is not a square deal. I am not on the programme to speak here to-night, and it is hardly a fair thing to put me in competition with the others who have had such long experience in this kind of business. However, Mr. Chairman and members of the Dairying Association, I am sure we are very glad to have you in this beautiful "City of the Bay," and while we welcome you here we would like you to see our beautiful city and ask you not to hurry away when the convention is over. Stay and see the town; see what we have got here, and then come back in the summer and see our beautiful bay and go out fishing, and then you will want to come back and stay here all the time. The people who go away from Belleville always want to come back. A member of the City Council says that if the people living in Chicago could get work in Belleville they would come back here and work for half price in order to live here, and I am sure the Dairymen's Association will want to come back here next year. They have been away for a long time, I think about fourteen years, and that is a long time to be away. I am sure we are very much interested in the dairy business, it is the greatest business in this country. I see from the returns that there have been about two and a half millions of dollars come into this county this year directly through the dairy business. No other business has put as much money in circulation, and our farmers are all getting rich about here, and are building fine houses and getting beautiful homes, and they are doing it largely out of the dairy business; and of course the mer-

chants are getting a little bit of it, and we all ought to be thankful that the dairy business is making such strides. I am told that to-day that you have received some very good advice as to how to take care of the cows and the milk, and how to keep the milk in better condition ; so that I hope that next year will be better than it has been this year.

The President : I have just received the following telegram from Mr. Gus Porter :

"Cobourg. I am detained here at court, consequently cannot be with you to-night, which I very much regret. Please extend to the Association my heartiest welcome, and best wishes for a prosperous and successful New Year. E. Gus Porter." (Applause.)

THE WELCOME ACKNOWLEDGED.

By J. A. Ruddick, Chief of the Dairy Division, Ottawa.

I am sure I apreciate the honor you have done me in asking me to respond to the hearty welcome which has been given us as members of the Eastern Dairymen's Association by his Worship the Mayor and the other speakers, and I am only sorry that this honor had not fallen on some more worthy person.

The Dairymen's Association ought to feel very much as though they were coming home in coming to Belleville, because it was Belleville, I understand, that this Association was first organized, about twenty-seven years ago, and it seems a very fitting thing to-night that we should be welcomed by a worthy son of a very worthy father, the first President of the Association. (Applause.) I never had the honor or pleasure of knowing Mr. Graham's father, but there is no name I have heard spoken of or heard mentioned in connection with the early history of this Association that is more revered than the name of that gentleman who had so much to do with the Association in its early days.

You have heard that it about fourteen years since we met here in convention. I believe I attended that convention, as I have done during the last twenty years. Now, I think it might be of benefit to some of you who are not directly engaged in the dairy industry to know something of the progress that has been made during these fourteen years. I find that in 1890, fourteen years ago, we exported from Canada only $340,000 worth of butter, and about $9,000,000 worth of cheese. I have to give you the figures for the whole Dominion, because the statistics are not given in any other way. I am very glad to say that although this Association represents Eastern Ontario, we always look at the dairy industry from a national standpoint. During the twelve months ending 30th June last, which really gives the last official figures, we find that we exported $6,550,000 worth of butter, and $24,700,000 worth of cheese—(applause)—and the figures for the next twelve months will be larger than that. We have made fairly good progress in these fourteen years since we last met in Belleville. If I might be allowed to just carry these figures on and to reach out a little into agricultural products in general, you may be interested in knowing that within the last few years we have made even more remarkable progress along some other lines.

In 1896 the export of agricultural food products amounted to only $39,000,000. During the last fiscal year the export value of the same products has reached the enormous sum of $99,000,000 ; and when I tell you that Great Britain imported last year $555,000,000 worth of these products, you see we have plenty of room to grow, and there is lots of hope for the future.

It seems to me that one of the best things in connection with this great development is that the great increase in our exports has not been due so much to the extent or area devoted to agriculture as the increased producing power of the people—the increased ability of the people who manage the affairs of nature for their advantage

and profit. You must remember also, that in addition to this great increase there is a very great increase in the home consumption. We have had considerable increase in population, and the increased prosperity of the people generally enables them to buy more of these products, and there is a factor that we very often neglect—the increase of the home consumption. All of you will be pleased to hear that the farmers of Canada are increasing their prosperity considerably at the present time. The latest census figures show that during the last ten years, of the total increase in population, only one-tenth is put down as increase in the rural population; so that we have this great increase in producing power with very little increase in the number of people engaged, and that shows that we are making a most remarkable progress. The Hon. Minister of Agriculture for the Dominion, Mr. Fisher, stated to me that in his own County of Brome, Que., he had taken the pains to have figures worked out, and the census of 1900 showed that the population had decreased by 1,300 persons, and yet they had actually produced two and one-half times as much in 1900 as they had in 1891. The point there, is that his county is almost entirely devoted to dairying, and that has increased the production and prosperity of the people to that extent. I desire to thank his Worship the Mayor, the President of the Board of Trade, and the Mayor-elect, for the very hearty welcome which they have given us on this occasion. (Applause.)

FOOTPRINTS IN THE MARCH OF MODERN DAIRYING.

By Thos. McGillicuddy, Department of Agriculture, Toronto.

Nearly one hundred years ago Napoleon made his historic march to Moscow. The Russians offered a stubborn resistance, but they were steadily driven back by the invader, until at last he halted his victorious legions before the capital of the Czar. The eyes of the French soldiers, weary with gazing upon bleak plains and gloomy forests, gloated with triumph as they rested upon the towers and turrets of the palaces, and the glittering spires of the churches, beneath whose ample roofs they hoped to be sheltered during the terrible Russian winter then at hand. But even as they still gazed they saw a sight which chilled them to the marrow, and caused some to cry out with dread. Smoke and flames were seen to rise from several parts of the doomed city, and soon tower, and turret, and spire, were wrapped in fire. The Russians had destroyed their magnificent capital rather than have it remain as a rendezvous for the hated invaders, and all that the relentless Corsican had left to him of the once beautiful city was a heap of ashes. Sullenly Napoleon gave the order for his troops to retire, and that awful retreat from Moscow was begun. As the French army tramped sadly homeward, tens of thousands fell out by the way, never again to answer to an earthly roll call, victims of disease, exposure, or famine. All along the route of that fateful march was left a trail of bleaching bones of men and horses, to mark the disappointed ambition of the greatest of French warriors. That, mark you, was a march of war!

Forty years ago Sherman made his famous march from Atlanta to the sea. Unlike Buonaparte's Russian experience, the march through Georgia was as successful one, for it knew no retreat, and it decided in a great measure the fate of the war. But Sherman's advance left behind it a wake of ruin—every farm house on the line of march was burned, and all the products of the field were either appropriated for use or destroyed. Its pathway was made an abomination of desolation. That, too, was a march of war, and Sherman himself said that "War is hell."

But about the very time that Sherman was making his devastating march through Georgia, Harvey Farrington, in the County of Oxford, in our own Province, (then Upper Canada), began his pioneer co-operative dairy march. Soon he was joined by

one and another, until to-day there is a regular army of 60,000 patrons of Ontario cheese factories, and over 20,000 patrons of our butter factories, besides the host of irregulars who are putting up dairy products at home. It is safe to say that, including milkers, haulers, makers, and salesmen, there are fully 300,000 persons directly engaged in the co-operative dairy business of this Province, or a greater army than Great Britain could muster for action in South Africa. Our cheese industry has more than doubled in value since 1891, when I first joined this Association, although I well remember hearing men at the convention held in that year anxiously enquire if there was not a danger of overdoing the cheese business. Thirteen years ago the butter export trade was the merest moiety; it now ranges from $6,000,000 to $7,000,000 annually.

Napoleon's Moscow march ended in a retreat; but there has been no falling back in the march of the industrial army of dairymen. Its drummers, like the little hero at Marengo, have not learned how to beat a retreat. Sherman's march to the sea was a victorious one, but it was at the cost of the comfort and wealth—of the health, of the homes, and of the property—of the inhabitants of Georgia. But the march of co-operative dairying has been even more triumphant, for it has built up homes instead of burning them down; it has created wealth and valuable products, instead of destroying them; it has brought comfort and happiness, and not poverty and sorrow, to the people on the land. The only torch it has borne has been the light of a fuller knowledge. It has brought with it all the blessings of prosperity to the individual and to the State. "Peace hath her victories no less renowned than war."

I have been present at every meeting of this Association since 1891. The convention held in that year was a memorable gathering. It was full of practical suggestions for dairymen, and it was pregnant with prophecy of good things to come. Going back in the pathway of time, I can see in that year three very distinct footprints. A call for dairy schools was then sounded out in trumpet tones by Hon. Thomas Ballantyne; winter care and breeding of dairy cows was advocated as never before; and the silo was described, and its adoption urged upon a doubting and hesitating generation. There was a trinity of helpfulnesses presented at one convention. The man, the cow, and the food constitute a threefold cord in this work that is unbreakable when well knit together.

The demand for dairy schools was at that time considered as something very radical; to-day Strathroy Dairy School in the west, and Kingston Dairy School in the east, flank the parent dairy school at Guelph, and all three have practically sprung into being since the veteran western dairyman uttered his call at Brockville thirteen years ago. It was not long after Hon. John Dryden took hold of his Department before these schools were arranged for, and every year they are being strengthened by him.

Up to twelve or fifteen years ago many cattle were left to winter outdoors, to shiver in the lee of a strawstack; sometimes to be pried up with a fence rail in the spring, or perhaps to add to the tin peddler's collection of hides when the bluebirds came to nest. Breeding dairy cows so as to come in in the fall when milk was scarce and in demand, and feeding them well for winter lactation in comfortable quarters, was regarded by some as a strange recommendation thirteen years ago; to-day it is so common as to be the rule with good dairymen. I can well remember the shaking of doubting heads when winter dairying was advocated; now some of the doubters are shaking hands with themselves over their conversion to this modern phase of the business.

Thirteen years ago corn ensilage was regarded in Canada as a Yankee fad; to-day it is so firmly fixed into our system of dairying that the only question regarding the silo is as to size, or the number on the farm. In these matters of dairy schools, winter dairying, and the silo, we have made not mere steps, but giant strides, during the last twelve or thirteen years. Of course, some dairymen have been more successful with the silo than others, more especially in the matter of its inception. I

can recollect the complaints of "brewery odors" in the early days, and some were fearful lest after a feed of silage some of the cows might be inclined to get hilarious, and perhaps endeavor to bawl out a bovine rendition of "We Won't Go Home Till Morning." It is quite true that many of our first silos were opened with much anxiety, and occasionally with a little profanity; but all that is now changed. Much of the trouble came from immature corn, and improper handling; but to-day few farmers would be without the wholesome, succulent corn ensilage, which helps to give summer conditions during the period of sleighing.

A dozen years ago the Babcock test for butter fat was brought to the attention of the members of this Association. It promised to be one of the greatest aids in the equalization of profits according to desert—according to both the quantity and quality of the milk. However, that phase of human nature known as "cussedness" has prevented the full application of the principle of division afforded by this ingenious and trustworthy method of determining the amount of fat in milk. Two things have hindered the general use of this instrument in computing the value of milk brought in by patrons of factories: The first has been the suspiciousness—I was going to say ignorance—of some patrons, who are generally sufficient in numbers to turn the factory vote against the introduction of the test; and the second hindrance has been the priggishness of some of the schoolmen, who have failed to take into consideration when making up their tables that not only casein and other substances besides fat enter into the composition of cheese, but that there also crops up that all-permeating element of commercialism known as "human nature." Now, it is quite obvious that the man who pools his milk, if it be low in fat reading, is going to get credit for more than he brings—for fat that his milk never possessed; while the man with rich milk, who gets paid by the simple reading of the Babcock test, is going to get paid for more than he brings—for casein, etc., that he never owned. And in saying this I make no reflection on the sureness of the Babcock tester as an indicator of the amount of butter fat in milk. But we all know that milk with a comparatively low reading of fat has more casein or curd-making matter than the fat calls for, and should be credited with that; while milk with a high fat reading has less casein than the reading calls for, and, therefore, should be discounted to a certain degree. Hon. Thos. Ballantyne and Prof. Dean have made an important move in the direction of justice by advocating an addend, one of 1, and the other of 2, to the fat reading. It seems to me that an addend of 3 would mathematically prove just about as fair as the addend of 2, and it would put the transaction on a more popular basis. Not only would it give credit for the casein as well as the fat, but as between the two extremes of pooling on the one hand, and the apportioning by the actual reading of the tester on the other, it would pretty fairly "split the difference," or be what the politicians call a "compromise." The dullest mind could soon understand that. The pooler and the extreme Babcocker could meet half way, and once more embrace as brethren.

While always advocating pure dairy products, this Association eleven years ago in a very pronounced way set down its foot against the introduction or manufacture of oleomargarine, or of skimmed cheese, in this country. Mr. George Taylor, M.P., appeared at our convention in Kingston at that time, and made an address in which he asked for the support of the Association in the fight that he and other members of the Commons, Grit and Tory, were making for nothing but pure and unadulterated butter and cheese being allowed to be made or handled in Canada. The dairymen of Eastern Ontario spoke then with no uncertain sound, and the members of the House hearkened and heard, and the making of oleomargarine is yet an unknown art within the limits of this fair land. It was then determined, and it has since been maintained, by Canadian dairymen, that our dairy products, like Caesar's wife, must be above suspicion.

Next came the question of branding and registering of cheese, and the matter of inspection was also pressed. The fight was a hard one. Inspection was protested against, on various grounds, but the advocates of more uniformity in make and ship-

ment succeeded. To-day our cheese is more even in character and appearance than ever before, and makers and shippers are both realizing that, so far as reputation for exported goods is concerned, they are in no small measure their brother's keeper.

For the past seven years the bacteriologist has been with us in person. We have seen him; we have talked with him, and he to us; we have gripped him by the hand; we have found him to be a man and a brother. It was an immense step in advance when the man of the laboratory was brought by this Association into direct contact with the man who furnished the milk, the man who made the cheese, and the man who sent the goods to the consumer. That was indeed a good day for the cheese business, for it meant the establishing of the faith of the dairyman in the man of science. It developed confidence when the bacteriologist was able to show to the everyday man that the dreaded B. coli could be traced to its original abiding place, when he was able to prove beyond question that the stinking odor and vile flavor of certain cheese was caused by barnyard manure dropping into the pail either during or after milking. The bacteriologist of this Association has also indubitably proved that the origin of certain mottled, rusty, and other discolorations of cheese were due to bad conditions of gutters or flooring; and not only has he shown the actual cause of the trouble, but he has also pointed out a sure remedy for these discolorations and these bad odors. He has literally "knocked the spots" off the mottled cheese. The bacteriologist has also given us those most desirable bacteria which are used as "starters" in our creameries. He has caught, packed, and labelled certain excellent flavors for our butter, and we can now buy them as we would buy vanilla or other culinary flavorings. This seems like a fairy tale to some people, but it is literally and practically true, and our Dairy School at Guelph to-day is continually sending out as a commercial transaction a number of these cream flavors, or starters, for cheese factories and buttermakers. This is a great step in the science and practice of dairying, and it has been introduced only within the last few years.

For a long time there was a conflict regarding the respective merits of deep and shallow creaming. The shot-gun can and the old-fashioned deep pan each had its sturdy champions. But the cream separator, a comparatively recent invention, has ended that discussion. This machine method is so rapid, so clean, and so thorough, that there is no other side to the question of creaming. The argument to-day is only as to separating at home and separating at a central station. All I have to say regarding the home separator is this: that where a hand separator is used, the strong arm of the husband, or that of the hired man, should twist the crank. The women of the farm should form a union and go on strike against turning the wheel. (Applause.)

One of the most important steps recently taken in connection with modern dairying has been the cool-curing of cheese. During the last three or four years experiments have been made in putting cheese into cool quarters soon after being made, and the results have been most satisfactory. The question will be more fully explained and discussed to-morrow by Prof. Dean, Mr. Ruddick, and others. It is enough for me to say that the experiments made so far have demonstrated the success of the cool-curing of cheese, both by ice and mechanical devices—more especially by the latter mode—and that not only has there been an improvement in quality as compared with cheese of the same batch cured in the old way, but there has been less loss from evaporation. However, one much-vaunted method of cooling the curing room, introduced six or seven years ago, namely, the sub-earth air duct, is being relegated to the limbo of exploded dairy fads. The paraffining of cheese—or using a coating of wax—is now under trial, and is favorably regarded in some quarters.

The question of transportation is closely allied with that of cold-curing. It is the next step in the process—the next link in that great chain sretching from the Canadian farm to the home of the British consumer. This question will get specific treatment to-morrow at the hands of one who has made it his special business to develop this most important part of our dairy trade, and the farmers of Canada owe

much to Hon. Mr. Fisher, and also to Prof. Robertson, for their efforts in this direction. The Dominion Government has been backing up the splendid dairy educational policy of the Ontario Government by their own progressive dairy commercial policy. They have bonused great steamships liberally to convey to Great Britain in the best possible condition the dairy products of our enlightened patrons, our educated makers, and our trained inspectors. The results of the last two seasons have vindicated the action of the Federal Government in coming to the aid of the dairymen by providing cold storage on board vessels carrying our butter and cheese across the sea. We have not yet reached perfection yet in this regard, but the immediate future is full of promise.

One cannot speak of dairy progress without referring to our swine industry. The hog has long been regarded as an indispensable adjunct of the modern dairy. He is the chief disposer of our whey. He has a great way of making away with the whey, if one may venture a pun. The development of our Canadian bacon trade has been synchronous with that of the cheese factory system. When co-operative dairying was begun in this Province forty years ago, the value of our export bacon trade was hardly worth reckoning. This year it has gone above $15,000,000. But for our present system of dairying that fact could not have been accomplished.

There are other phases of modern dairying that present themselves to my mind for allusion, or for fuller treatment, but I have shown you enough to indicate that great strides have been made in its triumphant march during the last twelve or thirteen years. To-day is bright with achievement; the morrow is golden with promise. The dairyman is assisting in a work of industrial and social evolution, and he is playing no mean part in that movement. The farmer is the man to whom all other men must reach back for sustenance—yea, even for very existence. "The farmer, he must feed them all," as the poet has beautifully expressed it:

The king may rule o'er land and sea,
The lord may live right royally;
The soldier ride in pomp and pride,
The sailor ride o'er oceans wide;
But this or that, whate'er befall,
The farmer, he must feed them all.

The writer thinks, the poet sings,
The craftsman fashions wondrous things,
The doctor heals, the lawyer pleads,
The miner follows precious leads;
But this or that, whate'er befall,
The farmer, he must feed them all.

The merchant, he may buy or sell,
The teacher do his duty well;
And men may toil through busy days,
Or men may toil through pleasant ways,
Beggar or king, whate'er befall,
The farmer, he must feed them all.

The farmer's trade is one of worth;
He's partner with sky and earth,
And partner with the sun and rain.
And no man loses by his gain,
And if men rise or if men fall,
The farmer, he must feed them all.

The farmer dares his mind to speak;
He has no gift or place to seek,
To no man living need he bow,
For he who walks behind the plow,
Is his own man, whate'er befall,
Beggar or king, he feeds them all.

A number of the speaker's points were illustrated by apt humorous stories, which were well received by the audience.

The President: I have very great pleasure in now introducing to you the Hon. John Dryden, Minister of Agriculture, for this Province. I am sure this audience will be delighted to hear him. He is the man who has stood behind the Dairy Association, and assisted them on every stage in connection with the development of our great business. No man has served the dairymen and the people in this district better than the Hon. John Dryden has done in the past, and I am delighted to introduce him to you. (Applause.)

ADDRESS.

By Hon. John Dryden, Minister of Agriculture, Toronto.

We have made sufficient advancement, we have arrived at that stage in the dairy industry of this country where I think I would not be doing my duty on this occasion if I did not offer some congratulation. I know you will all say that I ought to commence with your honored President, and I want to congratulate the President of this Association on the part he has been able to play in connection with this dairy industry. I was asking somebody how long he had been President of this organization, and was told the number of years, and I said "It must be a great deal more than that, because it appears to me he has been at all the sessions I attended," and they said, "Well, sometimes the man who occupies the position of President asks Mr. Derbyshire to take the chair. He may have been in the chair, and you may have thought he was President." As far as I can remember he has presided at every convention. He is one of those kind of men that when he undertakes to do anything he succeeds. In carrying on a meeting of this kind he is a veritable tornado. Nothing can stop him; no obstacle can stand in his way. If there are no speakers to call on, he will do the speaking himself. If the singers disappoint him, he will call on some man in the audience, and get him up to sing, and I think it is a great thing to have a man at the head of the Association like that. (Laughter and applause.) His efforts have not been spasmodic, sometimes working and sometimes not; but summer and winter he is just the same, and whenever you want a man to do anything, you can depend upon Dan Derbyshire, the President of this Association. (Applause.)

I do not want to forget on this occasion the directors and members of this Eastern Dairy Association. I think they ought to be congratulated on the energy they have manifested, and the interest they have displayed, and the efforts they have made, to carry on the work of instruction that is so much needed in connection with this industry. They have carried on this work of instruction all over the district.

I especially want to congratulate the patrons and owners of these factories in the various parts of this district on the noble and hearty response they have given to the new system of instruction we have sought to inaugurate during the past couple of years. Little did I think a couple of years ago, when I ventured to suggest at the convention at Woodstock, that if this instruction could not be carried on properly, I was prepared to suggest to my colleagues that we should undertake a little additional expense and undertake the direction of it from the Department —little did I think then that so soon we should be endeavoring to carry it out as we have been during the past year. I was told that the patrons would not respond. I was told that they would not bear any part of the expense, and it was necessary that they should bear some of the expense. I was told they would entirely refuse to do so. How false that prophecy has been, I will let Mr. Publow answer, when he comes to talk about this matter to-morrow. I want to say that so far as I know these people have manifested the earnestness and enthusiasm in this matter which has been entirely unparallelled, and I want to say that I am proud to think that the men are scattered all over this eastern district of Ontario who have brought about this state of affairs, and I want to congratulate them on the stand they have taken. When we said, "You will have to furnish a portion of the expense," they said, "Our money is ready; send on the instructors; we are willing to take hold and try to perfect this product as far as we can." I have been delighted with the success that has been reported to me from time to time, and I think you will agree with me that the best help I can give as head of the Department of Agriculture is to stimulate as much as possible, and to teach the people to help themselves. That is the best help I can give, and the Department cannot do anything in this matter without

the co-operation of those people who are directly interested in this great industry. We are always willing to do our part, and in this matter we have had the noble assistance of the people, and I congratulate them on the result.

I would not be doing right if I omitted the instructors' praise. I want to congratulate these instructors, for they have done their part remarkably well. You must remember that such a large number had to be appointed that it was difficult to get every man exactly up to the standard which we would like, but on the whole the work has been reported to me as being very well done, and I think we have made considerable progress. Mr. Publow reported to me during the busy part of the season that he was meeting with some difficulties. Although the year 1903 was a great year for dairying, it was in some senses unfavorable. Bad flavors developed in some places, odors arose that they had not been accustomed to before, and I wondered, and I wonder now, what would have happened if these difficulties prevailed generally over the country, and we had not had this splendid organization which we have effected through the apopintment of these instructors to help us to get over these difficulties.

This organization, which now can be immediately utilized in case of an emergency, is just like the organization which some of our great manufacturing establishments have. They have their general agents, and sub-agents, and the general agent is called upon by the head of the office, and told that something is wrong; then he immediately sends his sub-agents to rectify the trouble. Mr. Publow occupies that position. He is the general instructor, the general agent, and he has charge of all these sub-instructors, and when any difficulty arises he is able to rectify it at once. I want to say to you that the story which he brought to me as to how he undertook to combat this difficulty which appeared in so many places at once, sounded to me like some one telling the story of a battle which had been won, and of a great victory which has been achieved; and I am sure it was a victory, because if this trouble had been allowed to go on, and our product had been inferior, our market would have been injured to that extent, and the industry might have been destroyed, and it might take several years to get back to the position which we held before.

I have been delighted with the progress that has been made, and I venture to say that within three years all our people will be able to say that this new system, this complete organization, will have a wonderful effect on these industries, and it will be seen to have been the greatest movement that has ever been brought forward in connection with this industry in this country. (Applause.) What pleases me most of all, however, is to see the enthusiasm that is manifested in connection with this industry all over the country. Everybody you meet seems to be wide awake and looking ahead.

You have been talking about the best herd to-day, and I have heard three or four people trying to claim where the first factory was built. I have just been given to understand that it was built in Quebec, but I never heard it before I came to this convention. Mr. McGillicuddy tells us that it was somewhere in the County of Oxford, in the west, and the people of Belleville think it was right near here. Here is where the first one you ever heard about was built, no doubt; and, I suppose, the people of Quebec are in the same position. Do you know what I was thinking, when I heard all this? I said to myself, I do not care where the first factory was erected, but I do care, and I would like to know, where the best factory is in this country. (Applause.) I am glad that our people are looking ahead, searching for some way to further improve this product and make it perfect. I am longing for the day, and I do not believe it is very far distant, when this country will make the very best cheese and butter that is to be found anywhere on this continent. I do not know but that we are doing that now.

In order to succeed, somebody has got to work out these various theories and problems, and put them into practice. I will take my hat off any time to the man

who will do things, and who can accomplish anything that will be of benefit to the industry. I have had the privilege of hearing men talk in a most graceful way, and beautiful way, about growing corn, and tell how it ought to be planted, and how it ought to be cultivated, and what time it ought to be cut, and describe it beautifully; but when you get where they live, and go on their farms, and expect to find this kind of crop growing in the manner in which they say it ought to be grown, you cannot find it; it is not there. I have heard men talk about ensilage in the same way, and I have gone to their place to see it, but I could not find that kind of ensilage there. I heard a man who could talk on the points of a dairy cow, even better than Mr. Glendinning, and I went to his farm to see the cows, but I could not find them. It is easy to talk, but I would like to find the man who will do as he talks, and who can put in practice what he tries to teach others to do. That is the kind of a man I am willing to take my hat off to; he is the man who is accomplishing something. But talking for talk's sake, and not being able to find results, is something like the man I was reading about the other day. He was starting on a hunting expedition. He got off at the station with his dogs and guns, and he asked the first man he met if there was any hunting there. "Oh! yes," said the stranger. "Splendid hunting. Lots of hunting." "I am very glad to hear that," said the hunter, "I want to have a little sport. What kind of game have you here?" "Oh! we haven't any game," said the native; "it is just hunting, you know." (Laughter.) And that story illustrates my point. I like to have talking, but when a man talks to an assembly like this, on any of these questions, I want to know whether he is a man like Mr. Glendinning—whether he has done it himself. Mr. Glendinning belongs to my county, and we would not let a man come from our county who could not do the things he talks about. We have plenty of men in this country who cannot only talk in general about the subjects connected with the dairying, but who can accomplish them as well.

In cheesemaking we must have ideals. We must have a definite knowledge of exactly what it is we want to produce. I am always saying to the young men up at the College, you must have an ideal before you. You must know what it is you want to accomplish. The man who built this building knew before he started what kind of a building he was going to put up; and we ought to be able to see exactly the quality of cheese we are going to make, and we ought to know just exactly what is wanted.

In the manufacture of cheese we must have the co-operation of all engaged. First of all you have the man who owns and feeds the cow, and he can spoil the whole thing right at the start if he feeds improperly and does not take care of his cows. I long to come in contact, and to have these instructors come in contact, with these men. They say some dairymen are a little crooked. Perhaps they are, and I think the business of the instructor is to make them straight. We need to come in contact with these men so as to show them the best way of carrying on this business. A man who is not very careful about his own person will not be careful about the milk, or about the cow, and that is the kind of man you need to reach and teach. And then there comes the other man who hauls the milk from the farm to the factory. And then the cheesemaker, and he cannot make a good product unless he has good raw material; and even if he has good raw material, he can destroy it after he gets it by improper methods. When he gets through with the cheese you have another man who ships it, and all these men have to be taken into consideration in the manufacture of this article, and any one of them can spoil it, so that really it becomes a question of men all along the line, and how often I hear that expression, "We want men." There are lots of people all around Belleville, but I venture to say that if you are starting any particular enterprise you would find it hard to get the kind of man you wanted. I always say to the young men, "You think the country is full of people, and there will be nothing for you to do; but if you will do the work you have in hand a little better than anybody else there will be lots of room for you. (Applause.)

What we are trying to do all the time is to prepare and equip these men to accomplish something. We want these men all along the line. If it was just one factory it would not be so bad ; we could find enough men to man one group ; but it is scores of groups all over this country, and to undertake to find the man who will perform this work correctly means work which is of considerable importance. Now, what we are seeking for is what we call a high average. You may have two-thirds very good, but if the one-third is inferior it will bring down your average. Here is a man putting up a barrel of apples, and two-thirds of them are real good ones ; if he undertakes to complete the job by putting in one-third decidedly inferior, he will so spoil the average in that barrel that nobody will want to buy it. He may try to hide it in the middle of the barrel, but when that barrel is emptied out in Liverpool the average is so bad that nobody wants it. And of you who are sheep breeders know exactly what happens when you have twenty sheep very good, and ten inferior ones mixed among them, and you will bring somebody to look at them; these ten which are inferior spoil the look of all the others. I do not know how it is, but somehow these inferior sheep are always in front of the buyer every time, so that the man who goes to buy the sheep does not see anything but the poor ones. It is the one-third that we are trying to bring up. I believe that so far as the cheese product is concerned, we have two-thirds of it good, and how are we going to get the balance of it up to a high standard ?—that is the question that we have to answer.

I want to suggest that in order to do this you will need five things. I put first and foremost that word which is always uppermost in my mind. The most important thing in order to accomplish this is education, not coercion, not law. It is better to get them to do right without law. My friend Mr. Publow told me he saw last summer that men were willing to clean up their stables and factories because they had been talked to in a kindly way, and by this kind of talking they have been able to accomplish a great deal more than they could have done if they had taken harsher measures.

The second thing that is needed is unity. I think the Associations in Eastern Ontario and Western Ontario ought to be working in perfect harmony. I have no authority out of this Province. but we recognize the men down by the sea as our brothers, and the men out in the prairies equally so, and we want them to unite with us in working out this problem. Our instructors ought to be united. Every one of them should talk on the same lines. Our dairy schools ought to be given exactly the same kind of equipment, and the Department of Agriculture in the Province and the Department of Agriculture in the Dominion ought not to work at cross purposes, and I am thankful to say we have never done so. There is work for each to do, and we ought to work together if we are going to accomplish the best we can for this industry.

The third thing is the need of diligence. It is not only working, but working all the time. This is especially the case with these instructors. I have heard of instructors going to a cheese factory, and saying "Good morning," and taking off their hat, and having a friendly chat with the cheesemaker, and spending the rest of the day down at the hotel. I do not suppose there are any instructors like that now. That kind of a man would not be an instructor for five minutes if I knew it. We want a man who is active. intelligent, and a hard worker, and who wants to accomplish all the good he can.

The fourth thing is perseverance. I see quite a number of Scotchmen here. I can almost always tell a Scotchman or a Scotch woman when I look at them. They believe in perseverance, and I want to say I believe in perseverance. You listened to Mr. McGillicuddy give the results of his observations during the last thirteen or fourteen years. That is not a very long time in the life of a country, but it seems a long time in the life of a man. Why is it we cannot reach perfection in that time ? Because there are so many people to deal with. I want to encourage you so far as I

can to do this, because the goal is worth reaching, and if we get up the best products we will get the best price, and will be able to hold the market.

The fifth thing is enthusiasm. Our farmers are working so much alone, and I want to suggest to them that they are only part of a great army all over this country, who are working perhaps for their own interests, primarily, but indirectly, but also working for the progress of this great country, and for the greatness of Canada. Surely this great work we have in hand is worth doing well. They say your humble servant is not much of a politician. I do not know that I am. My work is my politics. I think good work in my Department is good politics, and I think all of you, whether you are Liberal or Conservative, believe that. At all events, I have been working along that line for a long time. Some say I have been in too long, and that it is time to get out. I will not discuss that with you, but I will say that so long as I occupy the position that I now hold, you may depend upon it that the politics of the Department of Agriculture will be to do similar work to what we have been doing, and to try and accomplish as much as we can for the good of the agricultural interests of the Province of Ontario. (Applause.)

WORK OF DAIRY INSTRUCTOR ENDORSED.

By Levi Patton, Brockville.

I am sure that I feel somewhat embarrassed on being asked to address a gathering such as I see here this evening, after listening to the able addresses you have already heard. But, as one who is interested in the cheese business, I feel like saying a few words of encouragement. The work that is being done by the Dairymen's Association is something we all feel proud of. These associations are doing a good work, and I think the remarks you heard this evening from the Minister of Agriculture were justified, and I heartily agree with him. I was pleased when I heard that the factories throughout Eastern Ontario were going to be syndicated; I think that was a step in the right direction. I am more and more convinced this is a good work, and I am proud to be able to stand here to-night and say that I think this has been the greatest onward step that has ever been taken towards advancing the dairy industry in this country. (Applause.) Mr. Publow, who has had charge of the work in Eastern Ontario, deserves to be complimented upon the way he has managed his instructors and the syndicate work during the past year. We all realize that he has had many difficulties to contend with. Perhaps he has not accomplished as much as he hoped to in the beginning. It is not possible to accomplish a great deal in a short season. I believe he finds it difficult to get the best men for instructors. If, instead of having an instructor over thirty factories, we could so arrange our business as to have an instructor over twenty factories, I believe that the dairymen of this country would be willing to pay a good deal more for that instruction.

We have heard a good deal to-night about the work done at the dairy schools. I believe they are doing a good work, that will bring forth fruit. I think every young man engaged in the dairy business should take a coure at one of these schools; and I think we should have schools in this country where the farmers' sons could come in during the winter time and listen to instruction. I think it would be a fine thing to have our young men instructed by men of the calibre of Mr. Glendinning. I think it would be a grand course for the farmers' sons of this country, and I hope it will only be a short time till Mr. Dryden will be able to give us such schools throughout the Province.

Hon. Mr. Dryden: I will give you everything you want. (Applause.)

Mr. Patton: The Minister of Agriculture said one of the things we needed was education. Speaking as an old cheesemaker, who has gone through the trials and tribulations of the hard work that is to be found at the cheese factory, I could quite appreciate that sentiment. What the cheesemaker wants is to be better educated, and I think the cheesemaker who attends one of the dairy schools during the winter

months is doing a wise thing, and he will go back to his factory in the next season and be a better man than he was the year before.

Some cheesemakers get into certain ruts, and they do not like to change. We have been told to-night that two-thirds of the product of this country is the finest cheese, but I do not believe that two-thirds of the cheese that is made in the Dominion of Canada to-day is made as fine as it could be made. We are sending our cheese to the Old Country, and selling it in competition with the cheese made in England and Scotland, and if you look in the market reports in the English papers, what do you find? You will see that the finest Canadian Cheddar cheese are selling from 52s. to 54s. per hundredweight, and the finest English are selling at 64s. to 68s.. I believe there is something in English prejudice, but we cannot get away from the fact that the finest English cheddars are worth more money than the finest made in this country. I believe that by co-operation we can make the product of Canada better than it is to-day, and I believe we are taking the right course to achieve that object. Mr. McGillicudy said that twelve years ago, when we exported from nine to ten millions a year, some thought the business was likely to be soon overdone. We hear that story yet They say we will never see the price for cheese in the years to come that we have seen in the years gone by, but I do not believe that.

We are now turning out $28,000,000 worth of cheese a year, in a very few years we will be able to turn out $40,000,000 worth, and when we can do that it will be a good thing for the dairymen of this country. I am pleased to be here, and delighted with what I have heard, and trust that your Association may achieve the success you hope for.

The President: That is something of the style of the people who are doing businses in the Brockville district. (Laughter.) A few years ago I went out in the country to an oyster supper in connection with a cheese factory, and all the people were there, their wives and their sweethearts. The boys and girls were chewing gum together in the corner, and what a lovely time they were having at this meeting. I went on to show the people in that place that the Brockville section was the "original home of the modern dairy." (Laughter.) And it got into the Brockville Recorder, and it got scattered abroad, and there was trouble everywhere. Everywhere I went that year they told me that that place was the "original home of the modern dairy."

Now, I think if we can find the place that has the best factory at the present time producing the milk in the most economical way, and doing a business that is profitable and that is helping to build up the fair name of Canada, that is a more important place still. I believe if the Belleville section will get right to the front and do everything they can, the people of Brockville will stand right to the front with you.

INSTRUCTION IN DAIRYING

By G. G. Publow, Chief Dairy Instructor for Eastern Ontario.

I take pleasure in presenting my first report as Chief of the Dairy Instructors for Eastern Ontario. This year my report is considerably different from that of other years, as I am reporting not only on my own individual work, but also making a general report on the work of the twenty-two instructors in my charge during the season.

As a result of a conference held by the President and directors of this Association with the Minister of Agriculture in his office at Toronto in December, 1902, it was decided to endeavor to group the cheese factories of Eastern Ontario into syndicates of not more than twenty-five or thirty, and place a competent instructor in charge of each group, whose duty it would be to visit the factories as frequently as possible for the purpose of seeing that the cheesemakers were serving the patrons well—that is, that they were making the best and most cheese out of the milk entrusted to them. If not, it would be his duty to instruct the maker in the best methods. If milk was being delivered in a condition to cause defects in the cheese; he would endeavor to find

out whose milk it was, and lend his assistance in having it improved; or, if the cheese was defective from conditions existing in or around the factory, he should point them out to the proper person or persons and endeavor to have them remedied. It would also be his duty to test the milk for adulteration when there was reason to believe that fraud was being practised.

As a result of a circular issued by the Association to the factorymen of Eastern Ontario, offering them such service for the sum of fifteen dollars, applications were received from about five hundred factorymen throughout the territory between Toronto and Montreal desiring to enter their factories in syndicates.

To properly group this number, extending over such a large territory, required considerable time and forethought, and to the officers of the Association who devoted their time and energy to this work special credit is due. When the task was completed, it was found that those factories which had applied for admission to syndicates could most conveniently be arranged in twenty-two groups, comprising from twelve to thirty-factories each, which was done. The men placed in charge of these syndicates included six of the instructors previously employed by the Association, and the remaining sixteen were carefully selected from a large list of experienced makers who had applied for positions. From several of the districts where syndicates had been formed, requests were made that certain men should be placed in charge, and wherever it was possible their wishes were complied with. Before the men were placed in charge of their respective syndicates, they attended a two-weeks' course of instruction at the Kingston Dairy School to become acquainted with the nature of their work, and with a view to uniformity of instruction.

To save the time and space which would necessarily be required to discuss at any length the individual work of these twenty-two instructors, I have tried to simplify matters by making a tabulated list, which I give below, and which will give in a condensed form the names of the insructors and their syndicates, and what they have accomplished during the season. However, there are many other features of the work which I should like to discuss at greater length than could possibly be done in this tabulated form:

Syndicate and instructor.	No. of factories.	No. of visits.	No. of patrons visited.	No. of Babcock tests.	No. of ferment tests.	No. of adulterated samples.	No. of meetings held.	Average attend'ce.	No. of factories improved.	Value of improvements.
										$
Brockville, W. :—W. J. Carson..	20	150	100	825	1,500	3	12	40	9	1,650
Brockville, E. :—Alfred Street ..	20	158	20	2,062	800	10	1	60	10	1,535
Newboro' :—J. F. Singleton.....	29	160	102	2,476	1,020	4	5	30	29	2,367
Iroquois :—C. W. Norval	28	170	50	2,000	300	6	5	30	7	3,000
Cornwall :—A. H. Wilson	35	128	100	1,260	300	19	3	35	18	1,885
Lancaster :—T. B. Code	14	125	50	4,390	200	10	1	60	3	4,000
Perth :—J. H. Echlin.....	29	191	90	1,550	300	6	3	60	5	1,700
Belleville :—H H. Howey.....	30	160	111	2,270	556	23	2	40	11	1,100
Tweed :—H. Morton	26	203	115	2,920	377	5	5	35	12	910
Campbellford :—Thos. Thompson	28	140	327	3,148	947	7	1	40	14	2,795
Bancroft :—James Irwin.....	12	100	60	433	123	2	3	30	4	2,200
Napanee :—George Bensley.....	30	150	175	600	200	5	3	30	7	1,500
Ottawa :—S. S. Cheetham	27	160	100	1,500	500	9	11	40	12	2,875
Renfrew :— —. Gardner	30	168	50	1,350	915	20	5	25	12	1,650
Kemptville :—D. M. Wilson	27	139	50	1,575	563	13	22	50	16	2,288
St. Isidore :—I. Villeneuve	28	148	106	3,902	318	46	12	30	11	1,270
Maxville :—A. Rothwell.....	22	152	75	3,027	110	57	12	25	5	500
Alexandria :—A. McDonald	28	140	40	2,300	220	12	5	30	5	450
Kingston :—A. M. Ferguson	31	222	50	4,662	200	23	10	30	11	1,560
Madoc :—J. B. Lowery	27	194	287	3,240	713	4	2	30	9	1,000
Lindsay :—Wm. Hall	25	150	50	2,000	300	14	4	25	13	2,856
Peterboro :—R. W. Ward	30	210	29	1,873	814	6	8	50	18	1,445
Total	576	3,518	2,137	49,363	11.277	304	135	37	243	40,536

A perusal of this tabulated list will show that there were twenty-two syndicates, comprising 551 factories. The total number of visits paid to these factories was 3,317. This number includes calls made at the factory as well as full days spent with the maker. The number of tests made for adulterations were 44,310, of which 359 were found to be deteriorated by skimming or watering. There were also 10,693 fermentation tests made, and of these 9,020 were more or less tainted.

These figures will show very clearly how necessary it is that our energies should be directed to the care of the milk, rather than to the detection of fraud; for while the percentage of adulterated samples is scarcely 1 per cent., that of the samples deteriorated for lack of proper care is about 99 per cent. of the whole. It may not be generally understood, but it is nevertheless true, that much greater loss is sustained through the improper care of the milk than through the comparatively small number of adulterations. Adulteration of the milk by skimming or watering simply lessens the yield, but when it is deteriorated through improper care, it not only decreases the yield, but it also deteriorates the quality, which injures the reputation of the cheese, and causes the maker annoyance and loss as well.

The means we adopted to bring about improvement along this line was by issuing pamphlets on the proper care of milk, the holding of meetings of patrons, at which they were given practical and useful addresses, and the effects of tainted milk demonstrated by the use of the fermentation test. And to further assist the patrons in this matter, one thousand nine hundred and ninety-three special visits were made to their farms for the purpose of locating the cause of the deterioration, and it was usually found that the people were not sufficiently careful to keep the milk clean, in pure surroundings, and at a sufficiently low temperature to prevent it becoming over-ripe and tainted. A great improvement was brought about by these special visits, and wherever the presidents or managers of factories co-operated with the instructor, very decided improvements were made. Hundreds of milk stands were moved to more desirable locations, and hundreds of old milk cans were discarded and replaced by new ones

But, as well as inducing the patrons to take better care of their milk, factorymen also were stimulated to action, and as a result a great many factories were cleaned and improved, and several new ones built during the season. Some 218 factories received improvements to the extent of $53,336.

In regard to my own work, I might say that it was my duty to superintend the work of the twenty-two instructors placed in my charge, and lend them any assistance in my power in the discharge of their duties. That I might be kept constantly in touch with them, at the beginning of the season each instructor was supplied with blank report forms, on which he reported to me each week the results of his work. In this way I always knew where each instructor was, and what he was doing, and could generally determine where my assistance was specially needed.

But as well as receiving and examining their reports, I succeeded in visiting all the districts except one, and saw the manner in which each instructor was doing his work. By this personal inspection I was able to see just what was being accomplished, and to find out conditions that existed throughout each district.

I visited in this way 386 factories, and attended 24 meetings of patrons. Regarding the instructors, I found they were all making an honest effort to make improvements in their sections, and most of them giving satisfaction to the factorymen, and doing good work. In a few instances, when complaints were made, I found on investigation that the trouble was generally due to the factorymen and patrons not making any efforts on their own behalf. They expected too much of the instructor. But, considering the number of new instructors, and the many difficulties with which they had to contend during the season, the number of complaints was comparatively small.

Concerning the conditions of the factories, I would say that the great majority of

them are not in the condition they should be. Owing to the process of cheesemaking being one of fermentation, it is absolutely essential that the place where it is carried on should be perfectly sanitary, have an unlimited supply of pure water, and be so constructed that a desired temperature could be maintained. Not more than 25 per cent. of the factories throughout the districts fulfil these requirements, the others being defective either in sanitary conditions or in other ways, many, in fact, not being fit for the manufacture of cheese. In fact, the need of improvement in factories is so great that I would urge the patrons and everyone interested in the welfare of this great industry to do all in their power to bring about the necessary improvements ; for before we can reach the perfection that we desire in our products, the conditions surrounding the manufacture must be greatly improved.

While a few good factories are to be found in each section, Belleville, Perth, and Brockville East show the greatest number, and appear to be the most progressive in this respect.

Another factor in our work is the milk supply. Regarding the quality, comparatively few complaints were made during the early part of the season. During the months of May and June the milk arrived at the factories in very good condition, and the makers experienced very little difficulty in manufacturing it into fine cheese. In fact, the cheese made in May and June this year were of exceptionally fine quality. The weather during those months being exceptionally cool and dry was the principal reason for this.

Early in June the instructors' weekly reports that I received began to assume a different tone, which indicated that something was wrong. The cheese were being reported upon as acidy, and not clean in flavor. Such reports coming from factories that had previously been turning out cheese of exceptionally fine quality, led to severe criticism from some quarters, and some even went so far as to say that it was due to the new system of instruction, as makers whose cheese had never before been faulted, were now experiencing great difficulty in manufacturing cheese that would stand inspection. Similar reports coming in from nearly every one of the instructors in my charge, some of whom were so discouraged that they even wished to resign their positions, soon led to an investigation being made. I immediately visited some of the districts where they were experiencing the most serious trouble, and made a personal inspection of the existing conditions. I went to the factory, and superintended the receiving of the milk and its manufacture into cheese. I also made fermentation tests of all milk being received and found that where they whey was being returned in the cans, almost every sample contained an unusual fermentation. Where whey was not being returned in the cans the fermentation was not as prevalent. Then to decide whether this fermentation was confined to the syndicated factories, I visited several factories that were not in any of the groups and found on investigation that exactly the same conditions existed there. This clearly showed that the trouble was not due to the new system of instruction. I soon discovered that the makers were not giving the milk such treatment as would insure the best results. This was natural, considering that they had never encountered this fermentation before.

I then issued a letter to each of the instructors, which was published in most of the papers, giving what I considered to be the best treatment of the milk under the circumstances, pending an investigation of the matter which I was having made by Dr. Connell, Bacteriologist of Kingston, the results of which will be found in his report. Even where the greatest pains were taken as to cleanliness and care in handling the milk, both on the part of the patrons and makers, still they did not succeed in entirely getting rid of the trouble. I would, therefore, strongly recommend patrons and factorymen to do all in their power to prevent it recurring next season. I think if this trouble had not occurred that the output of cheese would have been of uniformly fine quality throughout the season. But even as it was, the quality from some sections has been reported to have been better than ever before, and the entire output as regards make

was more uniform than ever before. This was also shown at the several exhibitions that I attended, especially at Toronto, where cheese were shown from as many as twenty-three factories in a syndicate, and the quality was almost as uniform as though they had been made in one factory. The results of this should be gratifying, not only to the instructor in charge of the syndicate, but also to the directors of the Association and makers and patrons as well.

There are, nevertheless, some general defects found in the cheese, among which might be mentioned the flavor, texture, and finish, and which require the co-operation of patrons, factorymen, and makers to overcome. Unless all three work together, the standard of perfection to which we aim cannot be attained.

In conclusion I would say that personally I am very well pleased with the results of the season's work, and, as an evidence that it has met with general favor, I have received a great many testimonials from factorymen and patrons expressing their satisfaction with the new system of instruction, and, desiring that it may be continued; while on the other hand, I have received very few complaints of any kind of dissatisfaction with the service given by the Association this season. I think this is very gratifying and encouraging, considering the many difficulties with which we had to contend.

SCIENCE AND PRACTICE AT WORK TOGETHER.

By W. T. Connell, M.D., Bacteriologist, Dairy School, Kingston.

I have no new story to lay before the members of the Association, but my remarks will traverse ground I and many others have often trod, for there are yet many who do not see the necessity of heeding the advice so frequently given from this and similar platforms. Last year at Ottawa I addressed the Association on the necessity for cleanliness in milking and caring of milk, and the value of cooling milk so as to secure a good clean article from which to make cheese and butter of finest quality. To-day I will direct my remarks more especially to the shortcomings of our factories and creameries from the sanitary point of view, and will give my ideas as to their betterment.

Right here let me say that I think more has been done in this line this past year in Eastern Ontario than in any previous five-year period to impress the necessity for sanitary conditions in and around factories. This I ascribe largely to the new system of inspection and our energetic Chief Inspector. It is a matter of common remark that the sense of smell gives one the first indication of the neighborhood of a factory. This remark is based more largely on the truth than many other such sayings. I would ask if the members of this Association like to have their factory premises classed in the same list as glue factories, slaughter houses, pig-pens, for these become common nuisances by their odor, no more dangerous than those arising from putrefying whey and factory waste. Apart entirely from the standpoint of the public health, factory men have to consider what I may roughly term "the health or condition of the manufactured cheese or butter." I submit that the presence of such conditions about a factory tends always to deteriorate the quality of cheese or butter, as the conditions are favorable for the development of these taints which so quickly lower the value of the product.

There are several points I desire to discuss in this connection, and first I will direct my remarks to factory situation and construction. A factory of course must be situated so as to serve best the needs of its particular locality; but it is surprising how many of them are placed on low, even swampy, ground where neither good drainage nor good water can be secured. In many of these an excellent site could have been obtained within several hundred yards of the actual situation. Just as important as convenience to patrons are such points as drainage and good water, and these latter should never be lost sight of in locating a factory. With the actual construction of the factory I have nothing to offer, except as to the make-room. There should be an impervious floor in this

room sloping toward a gutter leading to the drain. I have not yet seen a wood floor that was impervious for more than a single season. Such a floor leaks sooner or later, and then under the floor there is a filthy reeking mass so strong at times that one wonders that even the microbes can stand it. A properly laid cement floor built from ground up, fills the bill better and more cheaply than anything I know. Such a floor, while rather hard to work on, can be kept readily cleaned, and if made right does not need renewing more than once in fifteen or twenty years. Now the gutter in such a floor should connect with a drain, and this connection should be made so as to prevent leakage. The drain pipe should be of glazed tile, and should be carried underground for at least 100 feet from the factory before discharging, and from the end of discharge pipe there should be a good fall so as to secure the carrying away of the waste matter. It ought to be one of the duties of the maker to see that the drainage matter does not accumulate and putrefy. It would be a good idea if factories would adopt the "septic tank" system of disposal of their drainage matter. In this system the waste matter is carried into a tank which overflows into a second tank, which in turn overflows into ordinary drain tiles buried twelve to eighteen inches under ground. In loose soils no under-draining is needed, but in heavy soils under-draining would be necessary. The tanks should be covered and have ventilating shafts. The drainage matter after passing through the tanks is wonderfully free from offensive odor, and when it filters through soil from drain tiles is practically odorless. Such a system can be put into operation for from $75 to $100. The overflow pipe from the whey tank should be connected with the drain in all cases With a tight floor and a proper drainage system either with or without the septic tank, the foul odors so frequently found around factories would disappear, and with them would disappear a number of taints which are now present. Further a proper drainage system is a very important item in the securing of a good clean water supply. Most of our factories derive their water from surface or shallow wells, which are simply collecting reservoirs for the surface or ground water, depending directly on the rain or snow water in their neighborhood for their supplies. Of course all factories are not in this category, as some use water from bored wells and springs, rivers or lakes ; yet I think the majority depend on the shallow well. Now, as the well is always close to the factory, if the drainage is deposited in and around the building it necessarily follows that sooner or later this will make its way into the well and contaminate the water. That it commonly does so there is no doubt ; and that the danger increases as the earth gets more and more soaked year and year there can be no question. From the results of tests I have made of factory well waters, I have come to the conclusion that most of them contain about as much solid matter as does whey, and this perhaps accounts for the cheese-maker so frequently mixing the two for the patrons. The water used at some factories is totally unfit for the purposes required. It would be impossible to clean anything with it, in fact one would be more apt to contaminate the object if one made the attempt. Last summer I had occasion to visit a factory not twenty miles from Belleville to make an inspection of the premises. The floor of the make room was raised about two feet from the ground, and, as is usual, was leaky. There was an exceedingly foul smelling, slimy mass under the floor. The drain itself from the gutter in factory floor was in a fair state of repair, though it discharged too near the factory, and had too little fall at the outlet. The well was right up against one corner of the make-room, and the water in it was so foul that animals would not touch it. On looking into the well one could see streams of dirty slime running down its sides on the factory side, naturally leading to gross contamination. This water was one of the worst samples I ever examined, and no doubt contributed its quota towards producing the tainted cheese so frequently found at that factory all the summer. Usually the contamination is not so gross as here described, but water contaminated with gas forming and putrefactive bacteria is altogether too common in our factories, and I must almost altogether ascribe it to the lack of care in disposal of the factory waste.

The last point which I wish to consider is that of cleanliness of factory interiors and of the whey tanks. It goes without saying that if a factory make-room and its utensils are kept in a filthy state the product made therein will contain the earmarks of the factory. I think most cheese-makers make an honest attempt to have their make-rooms and utensils clean ; a few of course do not, but they are in the minority. However, most makers stop short at the factory door, and think their duty ends there. I do not think it does, for as I have been insisting all along that the factory surroundings are an important element in the factory product. Besides the matter of drainage and water supply to which I have already referred, there is the important matter of care of the whey tanks. These should be situated away from the well, and should have an overflow pipe connected with drain. Further, they should be cleaned out and scalded at least once per week, as this would present the development to any very grave extent of dangerous forms of bacterial life in these tanks. I have been told by one maker that I am wrong in asking men to clean out their whey tanks, as if they are left alone the souring and putrefactive organisms kill out any forms which produce bad taints. There is one grain of truth in this statement, and that is that sour whey is not a good breeding ground for many dangerous bacterial forms ; but on the other hand there is no question that sour whey does permit the growth of certain yeast forms which we have found to lead to fruity and bitter flavors in cheese, and have caused much trouble this past season. Someone may ask, "How does the whey tank seed the factory ?" By the whey not being thoroughly removed from the patrons' cans in the ordinary washing given them on the farm ; the result being that when fresh milk is added there is a whey starter ready for work, and if the milk is not cooled there is an excellent development in such cans by next morning. It has been shown by Prof. Harrison and others that it takes very careful washing and scalding to thoroughly sterilize even a good milk can. It is a much more difficult matter to rid a broken, cracked or rusty can from contamination. There is no question in my mind that when contaminating bacteria are present in the whey tanks that the trouble is kept alive by the common lack of efficient cleaning of the cans.

In this connection let me speak of the serious and widespread taint to which Mr. Publow has referred as having occurred during the past season. This was characterized by the cheese becoming open, often acidy and bitter, the openness beginning first as minute pin holes around which the cheese (colored) would whiten, gradually the holes would enlarge into slit-like openings. The cheese did not puff. This openness differed from ordinary gas in cheese by occurring in spite of the development of high acidity ; in fact the high acidity seemed to increase the tendency to the gas formation. Now, at Mr. Publow's request, I made an investigation of this taint. I found in cheese and curd large numbers of a yeast organism not present in ordinary cheese. This yeast could readily grow in strongly acid whey, and formed gas slowly, corresponding to its course in the cheese. On examination of the whey from affected factories this yeast it was especially abundant, and there is every reason for believing that the whey tanks when once infected were the seeding centres. Where the yeast came from primarily I do not know, but as yeasts are abundant in nature, growing on tree leaves and certain grasses, it probably has its normal place of growth there. Evidently this past summer was just suited for its development, and once developed and finding a suitable food stuff in milk it naturally developed there abundantly. The measures advised were simply those of thorough cleaning of whey tanks, with a repetition of the process at frequent intervals ; advice to patrons to thoroughly clean and scald their cans, and reject rusty and cracked cans, and to keep their milk away from trees and dust and to cool the milk down to 65 degrees F. These measures where carried out never failed to stop the trouble, or at least to control it. This is a good example on a large scale of what occurs very much more frequently in a single factory, and the measures of control here advised would apply very widely to eradicate many similar taints.

I trust and believe that the time will come when factories and creameries will require to be certified as in a thoroughly sanitary condition before cheese or butter

can be manufactured therein, and I say that day cannot come too soon for the good of the trade.

The President : These are two very valuable reports, and we want the cheese-makers to take charge of the meeting, and ask questions in regard to either of these papers. We want a first-class, sharp discussion of the work that has been done this year. They talk about these yeasts and the trouble we have had. I believe it was the dirt and the stink around the factories that did the whole blessed business. I cannot help believing it, and we have got to get rid of these things.

Mr. Publow : Rather than have it go out that it was due to the dirt and stink around the factories, I have this to say : that I went to some factories, that were clean, and where no whey was being returned in the cans—just as clean factories as I ever put my foot in—and they had the trouble there. The cans came into the factory in excellent condition, and with some sixty odd patrons, I found only four samples of this yeast in that factory. We held a meeting of the patrons, and some acknowledged that their milk was in a bad place under trees, and another one in the barnyard, and when these people cleaned up their cans, and kept them in a proer place, the trouble ceased. In another factory, where we had the most yeast trouble, they had a first-class cheese-maker, and it was a first-class factory, and it was almost impossible to make cheese that would pass inspection. We held a meeting of the patrons, and I told them what I thought the trouble was due to. I said I did not think it originated in the whey, and I suggested that they should thoroughly clean the tanks and lose the whey for one day, and that every patron should thoroughly clean his cans ; that if they were keeping their milk in a bad place, to get it out of there and clean everything up and cool the milk. I went back to that factory in four days, and you would not know the cheese were made from the same milk, and they were not having any trouble, but you would see in some of the cheese a pin-hole as if a pin had been stuck in it. They repeated the cleaning of the tanks and cans, and lost the whey for another day, and every farmer thoroughly cleaned, and they had no more trouble all season. Once you get it in, you have got to thoroughly clean up everything, because it is a very difficult thing to get rid of.

A Member : Do you think the cheese-maker has abundance of time to attend to cleaning the whey tanks ?

Mr. Publow : I do not think he has, nor do I think it is his place to get in there to clean it out. I think there should be a man employed by the farmers to attend to that. (Applause.)

A Member : I think Mr. Publow has very clearly shown that the trouble does not arise in the whey tanks themselves. We are all willing to admit that nothing will carry the trouble along so much as having it in the whey tanks. I always look out for trouble of that kind after a rain, and in most cases where I conducted a fermentation test I found out where the trouble lay, and when I visited that patron, I found that he kept his milk under a tree, and I think the trouble originated with the yeast that grew on the trees, and I think that is where the trouble started in the first place.

A Member: What do you think of cement tanks ? Would you recommend them ?

Mr. Publow : Personally I have had no experience with cement whey tanks. There were a few put in this year, and they are reported to have given good satisfaction. I should think that if they are well done, they would make a good tank. Two were put in, in the Brockville section, and Mr. Judson, from Lynn, put one in, and he might give us som idea of how he liked them. They have not been in sufficiently long to know how they are going to turn out.

A Member : Do you find the yeast worst where they take the whey home in the cans?

Mr. Publow : Where the yeast was once at the factory and the whey taken home in the cans, I never failed to find it in every single sample of milk, and where there was no whey being returned, I just found it in odd cans. People were ready to believe there was nothing in this, but you must remember that we never had in my memory a season just like this, dry so long and then came wet and extremely hot, and we never

had such a rapid growth; and still at that very time that fermentation started and it seemed to be fairly general. It did not start and spread right at once. They did not have it in the Ottawa Valley for three weeks after we had it in Brockville. I never saw such cheese. They had good makers in the factories and the people were taking good care of the milk. I found it foamed in the vats like ginger beer, and it was impossible to make cheese. You could not taste the curd. It would pucker the tongue up. All the factories were not so bad, but I failed to find any factory that did not have more or less of the taint, and I am satisfied that the measures we took so quickly to notify the makers with regard to dealing with it had a good effect. The more acid they gave it, the worse the flavor was. We recommended them to set their milk sweeter. In many instances the milk came in over-ripe, and in cases of that kind the cheese was full of holes.

A Member: Did you find it better to send the milk once or twice a day?

Mr. Publow: In all the factories we visited the milk was delivered just once a day.

A Member: We used to send our milk twice a day to the factory. Do you think that would be better?

Mr. Publow: No; I think not. I think you have better advantages at home, and can take better care of it there than you can at the factory.

A Member: I feel that it would be an injustice to let this opportunity pass by without saying a few words with regard to cheese taint that I experienced. About the time this taint broke out, I found it very difficult to persuade at least a few makers that the giving of too high acid for the ripening of milk was favoring the development of taint. I asked them to set their milk sweeter, and get their curd better matured, and not give it quite so much chance, and they would have better results. They did not seem to see this. They seemed to think it was an ordinary gas, and by giving a high acid it would enable them to overcome the trouble. Just about that time we were favored with an open letter from Mr. Publow, and I cannot speak too much in favor of the belief that, in that section alone, it meant a lot of money to the people. I feel that it was one of the greatest reliefs that came to our section. In one factory the tanks were cleaned out twice a week, and everything around the factory was in perfect order. On visiting the factory late in September, I found some traces of yeast taint. I made a fermentation test of each sample of milk brought there and I found it quite evident in one particular sample. I drove out to see the patron, and when I got there I found he had a very bad can, a rusty can, and the milk-stand was near the barnyard. I explained matters to the farmer and he was quite agreeable to fix things up. I returned in about a week and there was no change. The maker said it was impossible to make cheese at all, and he had complaints from Montreal. I went back and made a fermentation test of every patron's milk, and I found only three of them bad, and I arrived at the conclusion that this one man caused the whole trouble. Before I left I visited fifteen patrons, and we ran the whey out for one day, and gave everything a general cleaning up, and when we ran the whey out, they seemed to realize there was something for them to do. Shortly after that time, Mr. Publow came to my section and inspected what I had done, and he found the cheese in excellent condition. We had to get rid of this one patron, because he would not do anything, and we allowed the other man to have him that wanted him. I believe that if our farmers would discard the use of old rusty cans, and keep their surroundings better, and that if the factories were kept scrupulously clean, we would have but very little, if any, taint. In another instance I was notified that the maker was in serious trouble, and I went there, and found that the whole trouble consisted in one patron's milk. We succeeded in getting that trouble remedied, and I believe that cleanliness is the mainspring of success. (Applause.)

A Member: As I happened to be one of the patrons who received assistance from these letters sent out by Mr. Publow, I feel it my duty to give him credit for what I believe he deserves. His letter instructed the makers as to how to handle the milk. It appeared in the Ottawa Valley three weeks later than in the Brockville district, and

these letters enabled us to seize it by the throat in the early stage, and we overcame the difficulty with very little trouble.

A Member: I would like to say here that I think it time for the Dairymen's Association to try and secure a better quality of tin in the cans supplied the farmers. I find in each section a number of cans in bad condition. I had to refuse to receive milk in 260 of them, and there are probably 500 more that should be put out. The farmers say they cannot afford to buy a new can every few years, they seem to get rusty very quickly. I think there is too much lead used in the coating of the cans. If you take a white cloth and rub on the new can, you will find it rubs off too readily. I told the farmers in my section that I would endeavor to bring this thing to the front, and I hope there will be some action taken in the future. Our farmers are ready to buy good cans if they can get them. I have known cans purchased in one year, and they started to rust, and they said it was the best English tin to be bought.

The President: What did he charge for the can?

A Member: Five dollars; and he said he was losing fifty cents on them. It was a thirty-gallon can.

The President: He could not put that brand of tin in them for $5. You can get anything you want, if you pay the price. If you pay $7, you can get a can worth three of the $5 ones. If that is the best brand, as you say, it will cost $7, and it is worth a great deal more than that.

A Member: How could the farmer tell the difference?

The President: He cannot tell that; he has to trust to the honesty of the men who build the can.

A Member: Where do these honest men live? (Applause.)

The President: Brockville. (Laughter.)

Mr. Judson: I put in a cement tank this last spring, and it did not give me perfect satisfaction this year, but I do not think it was the fault of the cement. I believe the cement tank is the only tank fit to keep whey in. My tank was put in in the spring. Cement should be so put in that it will not freeze. I used my cement tank before it got properly hardened. It was a concrete tank, built of cement and gravel, and it did not get properly dried, or the cement properly set, before I had to put my whey into it. I intend next spring as soon as the weather gets warm to have it plastered again, and when I get a nice smooth coat over it I think it will be all right. I believe it is necessary to have it drained so that water will not stand in it, and a good drain from it so that you can clean it out properly.

The President: I may just say on that tank question that the great trouble with the underground tanks is that the factory men as a rule do not keep them clean, and I believe to-day that the safest thing for us to have is the elevated tank, that you can get right at, and see the bottom, and the sides and everything about it, and find out exactly what is going on. At the same time, I am very glad to get this report, although I would not advise you to go in for the cement tank for another year. Our good friend has lots of money, and he can afford to give us this experience, and we can benefit by it. In the meantime, I think you can keep the elevated tank cleaner and better.

Mr. Judson: It is not necessary to have the cement tank underground. My tank is built on top of the ground. I have an elevated tank as well. My people would not pump whey. I was sorry I could not get the cement tank elevated. My tank is on the top of the ground and the drainage is perfect.

Mr. Ruddick: With regard to the cement whey tank, I may tell you that out in New Zealand they have used cement whey tanks for years—in fact, nothing else. They make elevated cement tanks. There is no difficulty about it at all, if you have proper construction. First you must have a good strong foundation so that there will be no straining, and you must have iron bars at the corners to bind it together. Lay waggon bars or barb wire well up and at the corners. It is a good idea to have angle irons. They are putting up some of these sky-scrapers with solid cement construction and

steel frame work. It is important to have the surface finished especially hard. Use a good quality of cement and sand and do not be too sparing of the cement. I think it is better to use 1 to 1 for the finish, and you should use Portland cement. I do not think Mr. Judson's failure is due to using it too green, because Portland cement will set under water. They have built walls right under the water with cement. Whey, of course, may have a very different action from water.

Mr. Judson: The reason I thought that was the case was that the lower part of the tank where the whey reached is where it was bad. I am aware that cement will set in water. I use angle irons on the corners, and I pump my whey right up to the other tank, so as not to have too much strain on the new tank. The surface seemed to be eaten off wherever the whey touched the cement.

Mr. Ruddick: It must have been the acid in the whey.

A Member: That has been our experience. We put in a cement tank last spring, and we found every time we cleaned out the tank, we scraped out a lot of refuse matter, either sand or cement; otherwise I think the cement tank is the proper thing. Our tank is three parts under ground; three sides are under the ground and the front is out of the ground. We carry the whey three hundred yards and then lift it in the waggon. I think the great trouble with us is that we do not take time to allow the cement to set. We built our tank in the spring only three weeks before we began cheese-making. It will only cost a small amount to put on a new coat every spring.

A Member: I may say that our cement tank at Mountain View has given every satisfaction. We gave it about nine weeks to set before any whey was put in it, and there is very little or no sand or cement scraped off.

Mr. Judson: Our tank had only three days to cure.

Dr. Connell: Mr. Judson has asked me regarding the effect of a slaughter house on the milk. In answer to that I would say that very much depends on the situation of the slaughter house, and as to where the milk is kept, and as to whether the cattle eat in the neighborhood of the slaughter house. If they eat grain near it, it will certainly not improve the quality of the milk, because of the absorption of odors. Apart from this there would not be any particular danger, providing the slaughter house was away from where the milk was kept, and from where the cattle eat.

Prof. Dean: In the dairy department at Guelph, we used tanks made on the same plan as the shell of a boiler. We have one that has been in use now over ten years, and it is just as good now as when it was made. I would not like to discourage cement tanks, for I believe they are an improvement on the old wooden tank; but I think you will always find more or less lime and sand being taken off by the acid. Lactic acid in the whey combines chemically with the lime, and I think you will have more or less trouble in that connection. Of course the harder the cement, and the better the quality, the less trouble you will have; but there will always be more or less trouble in the acid eating the cement, and I think an iron tank will be just as cheap in the long run as the cement tank. It is very much lighter, and you do not have to build such an extensive platform. We got our tank from Goldie & McCullough of Galt. Any firm that makes boilers will make you one. I think the time has come when we ought to have our tinware made by tinning on copper instead of iron. It is not so much the tin as the iron that rusts. Tin does not rust, it is the iron under it. If we would use copper vessels tinned over, such as they do with the very best dairy utensils in England, we would have no trouble. We have a cooler in our dairy that we have used for ten years. It is made of copper tinned over, and it has been battered and tumbled around by the students, and I never saw any rust on it. It is quite expensive, but I think the time will come when all our dairy utensils will be made this way. (Applause.)

A Member: Would these cans made of copper stand much bumping?

Prof. Dean: Just the same as iron or better, and they can be put back in shape if they get knocked out of shape, and you will never have any bother with rust.

A Member: What will be the relative cost?

Prof. Dean : I think four or five times as much as tinned iron.

A Member : That won't work.

The President : That will never do.

A Member : The trouble with concrete is, I think, in not getting it cured before you start to use it. I think it will stand the racket if you get it properly cured. We have been putting in concrete pig-troughs, and I think if it will stand that it will stand whey tanks.

A Member: Cleanliness has always been considered next to godliness, and I was just commencing to think that we must have the most godly people on earth in our section of the Dominion. We come here for information, and we get it. I am very well acquainted with Mr. Publow and respect him very much. We have not heard of this yeast germ in our section of the country, but probably our buyers are not so sharp as the buyers in the east. Mr. Publow noticed more of these yeast germs in the sections that are low. Our section is high and dry. I have been in the cheese business 25 years. When we first started out, we encouraged our people to put their cans under trees, where they should be shaded from the sun, and it now seems that is objectionable. I have noticed that under certain trees we did not get as good milk as we did under others, and it must be from something that comes from that tree into the can. You would advise us to put the can away from the trees.

Mr. Publow : Certainly.

A Member: The majority of the factories send the whey back in the cans. Are they doing away with that in any sections ?

Mr. Publow : There were hundreds and thousands of cheese that the buyers passed that had yeast germs in them. But I must say that the Belleville section was as free as any section, and it was due largely to the way that they took care of their milk. The Tweed section was the freest of any section, except a little part of it near Bancroft. The Tweed district was most successful in winning prizes in Toronto. There are only five factories in that section that sent the whey back in the cans. Some of the finest milk cans I have ever seen are in the Belleville section. They have an ice house in connection with them, and I would advise all the patrons to remove their milkstands away from the barnyards, and to build a little ice house in connection with it. You must cool the milk as quick as possible. It is our duty to have the milk in a condition so that it will make the most cheese and the best cheese, and two things are absolutely essential to do that—keep clean and cool. Do no wait for an hour or two, but cool it right down quickly. Some seasons of the year do not require any ice. Put your ice close to the stands so that your women will not have to go a hundred yards for the ice. About 75 per cent. of the people send their milk too ripe, from the fact that it has not been cooled down. The complaint from all the instructors is that dirty cans create a bad flavor; and why is it that you leave your cans in the same place year after year. You go home from these conventions and you milk in the same stable and in the same way. The stands are as bad as the stable, and some of them worse. Get them out of that. Build a good stand. This cheese is made for some person to eat ; if you do not send good milk to the factories there is no use having a good cheese factory. Fully 75 per cent. of the makers are able to make good cheese if you will send them good milk. Make the farmers do their part. Start to work now and clean up. You do not smell the barnyards and the stables because you are used to them. Change the barnyard into another field, and plow up the old one, and seed it down, and make it fresh, and turn them back into it again. Be a little thoughtful, and do not leave the milk can beside the stable or the pig pen just because that is a handy place and because some other factory will take your milk if it is rejected. With regard to the whey tanks, I would say get an iron one, and if you are going to have a cement one be sure and make it firm. Do not spoil it for the sake of $5. I believe you will find an iron tank the best. It will last longer. Have the tank arranged so that it can be cleaned out, and have the whey going home clean. The whey should be

no dirtier than the milk. It is an insult to the women of this country to ask them to wash cans after they have been filled with some of the whey that goes home from some of the factories. See that the whey tanks are clean, and do not ask your cheese-maker to go into them and clean them out. The time the whey is taken from the tank is just at the busiest time for the cheese-maker, and he cannot clean these tanks in the clothes he is going to work in around the factory. You should hire some man to do that and see that it is done.

The President then called upon Mr. Thos. McGillicuddy, for the last thirteen years reporter of the proceedings of the annual conventions, to say a few parting words.

Mr. McGillicuddy, in response, told a couple of stories of a humorous character, bearing upon the discussion just in hand, and (standing between the bacteriologist and the chief inspector) said that the information given by the man of science and theory on the one hand, and the counsel of the man of practice on the other hand, were the two half-hinges upon which the door of dairy success swung. Cheese-makers had been well and wisely advised by Dr. Connell and Mr. Publow that morning, and all they had to do was to "stand pat," to use a very common up-to-date expression. If every maker present were to use more kindly firmness with his patrons when he went home, he would verily have his reward. His advice to the makers would be that of the Irish professor to his class of students, who said, "Young men, cultivate moral courage. Have backbone. Be plucky and brave. In fact, gentlemen, do all you can to bring your backbone more and more to the front!" (Laughter and applause). Mr. McGillicuddy then advised the dairymen present to pass on the knowledge and inspiration they had received at the convention. He would say it reverently, "Freely ye have received; freely give." After another humorous story to illustrate this point, the speaker proceeded to say: After thirteen years of happy service with this Association I now retire from office. During that period I have been treated with the greatest kindness and courtesy by the officers and members of the body. Let me thank you all for your forbearance. Let me especially thank the President and directors for the inspiration I have received from witnessing their earnestness, and their enthusiasm for this great cause of dairying. You have made immense progress during the years I have been with you, but greater things are yet in store for you. With the men who have the work of the Association in hand, your future success is assured. Stand shoulder to shoulder, as in the past, and this Dairy Association of Eastern Ontario will soon be the biggest, as it is now the best, institution of its kind on the continent of America. (Applause.)

A Member: In discussing the whey tank, I may say that I have had some experience with wooden tanks, and I found that to oil them inside with raw oil until you have nearly soaked them through is a good plan and also to paint them on the outside. I have had to replace the one painted on the outside only in four years, and the one I have oiled thoroughly on the inside is sound and good to-day, and I believe will be good for the next ten or twenty years. It is apparently just as sound as when I first put it in, and I believe it is better not to paint them on the outside, but to thoroughly saurate them with hot raw oil. Put it on until you can see the oil coming through. It will take probably two gallons and a half or three gallons to thoroughly oil a large tank that will give you thorough satisfaction. It will clean easily, and make you a good sanitary tank.

A Member: Do you think it possible to disinfect a wooden whey tank that had not been cleaned for three or four years so that it will be all right?

Dr. Connell: I would say it would be very difficult, especially if it had not been cleaned for three or four years. You must have to turn scalding water on it for a good long while, for not only would the surface be infected but it would be infected for a considerable distance under the surface. Wood is a bad conductor of heat. It could be done, but it would be a very difficult problem.

Mr. Judson : Speaking of the iron tank, would not the acid in the whey eat the tank ?

Prof. Dean : We have used that tank for ten years, and it has had no effect up to the present.

A Member : Where we used a pipe for an outlet from the whey tank and it has only been in use a few years and it has got eaten up; what is the difference between that pipe and your tank ?

Prof. Dean : In that case it would be rust. We have used the same tank and the same outlet for ten years, and we have had no difficulty whatever.

A Member : Was your tank steel ?

Prof. Dean: What is the difference between iron and steel ? The steel is just iron that has passed through a different process.

A Member : One steel tank is worth a half dozen iron ones.

A Member : Would it be wise to line a wooden tank with galvanized iron ?

Mr. Publow : I would rather build a galvanized iron tank without the wood. That would make a good tank. It might not last quite so long as steel or iron but it would last longer than wood.

A Member: Speaking of the aeration of milk and cooling as quickly as possible, I would like to ask Mr. Publow if he would advise cooling with ice before any aeration takes place.

Mr. Publow : Yes, sir ; I would cool it as quickly as possible and when you are cooling it stir it. Cool it as quickly as you can to 65 degrees; the quicker you do it the better, and you can make more and better cheese from it. I would ask every man within my hearing to do that, and do not waste your profit by not doing it. It gnaws at my bones every time I pass a farmer's house and see his milk going to waste. If it was cared for in a common sense way he would get much more from it. What would you think of a man who had a plentiful crop of wheat, if he cut it down and bound it up and left it lying on the ground in the rain ? The milk wants to be cared for the same as your grain. It is not enough to get it in good condition, but you must keep it in proper condition, and the best condition is to keep it clean and cool it immediately.

A Member : I would like to ask Dr. Connell if a whey tank is properly cleaned in the fall would the frost have any effect on it in killing off bacteria ?

Dr. Connell : No, it would not. The cooling weather does not destroy the bacteria. They can live through it. They are like these animals that sleep all winter. The cooling simply stops them from growing but just as soon as the temperature rises again, and the conditions become favorable, they begin to grow.

A Member : What do you think of the practise of lowering the cans of milk into a well, just after milking ?

Mr. Publow : It is all right, if there is no bad smell down in the well.

A Member : Would you advise putting a cover on the can ?

Mr. Publow : Yes, to keep the frogs from jumping in. I would always advise covering milk. If you do not cover it with anything else, put a mosquito netting over it.

A Member : My experience of covering cans lowered in wells is very bad, and I would never lower a can in the well. The milk was very thick when we took it up.

Dr. Connell : The temperature of the water was very high, or it would not have thickened.

The President : Or else you left a little of that old whey in the can.

A Member : I have had a little experience with putting milk in a well in the can, and I have found that if I put the milk in the can as it came from the cow, and covered it up and put it into a well, it had a very bad odor when it came up ; but if I cooled it down and then put it into the well, I never had any trouble. I think it is bad to put it in a well when it is hot.

A Member : I think there is an objection to lowering cans in wells, because there is more or less danger of spoiling the milk, and I would not favor it.

Mr. Glendinning: I would like to ask Dr. Connell whether these bacteria that affect the whey tanks is a vegetable or animal life?

Dr. Connell: Bacteria are always of vegetable character. They all belong to the plant series, and though they are frequently called bugs, they do not belong to the animal kingdom at all.

A Member: What is the best plan for using ice to cool the milk?

Mr. Publow: The best method is to put the ice in the vessel, and run the milk over the vessel. The next best way is to put the ice in the water and the cans with the milk into it, or the ice around the can, and cool it down that way. Then, I think, the next best way is to put the ice in the can and hang the can in the milk.

A Member: Would not the best way of all be to cool it, and then put the can into the tank with ice cold water?

Mr. Publow: Yes; you could keep it down that way.

A Member: How is the best way to take care of Saturday night's milk?

Mr. Publow: Just the same as any other; only cool it quickly. Stir it or air when cool, and cool it down to 60 degrees, and then cover it up from the atmosphere, unless the atmosphere is as cool as that, and there are no bad odors around.

A Member: Would you leave it on the milk stand?

Mr. Publow: It would be all right there if you could keep it cooled down. If you have ice around it, and throw a wet blanket over the can, you could keep it cool. If you have a little ice house built in connection with your milk stand, you could keep it cool that way. If you have to mix the Saturday morning's milk, be sure to cool that down as cool as the other milk before you mix it. Do not pour the warm milk into the cold milk

A Member: Is it a very general practice to manufacture milk into cheese on Saturday night?

Mr. Publow: No; it is not very general. It is done in some places, and I do not think it is the best way to do. Give your man a chance to go to church.

A Member: What are your reasons for not making up Saturday night's milk?

Mr. Publow: Because the milk is wasted, and the cheese are not so good, and you work the man on Sunday, and he will never make the cheese as good. You have got to break the Sabbath, and the cheesemaker has enough to contend with, without ever doing that. (Great applause.)

A Member: Would it not be better for any man to break the Sabbath than break a lot of farmers?

Mr. Publow: No; I do not think so. (Hear, hear.)

A Member: They are feeding the whey at a good many of our cheese factories. The by-product is a very important matter with some of the farmers, and I think the farmers are very anxious to know what is the best method to feed this whey; whether to take it home in cans or feed it in pens near the factory. Many factories are considering the fact of building new pens this coming season I am not prepared to say whether it is right to have pig pens near the factory, and I would like to ask whether there is any danger, if you build a pen twenty rods away, and keep it as clean as possible, and build with cement floors, would there be any danger in keeping 500 hogs? Would there be any danger of injuring the product?

Prof. Dean: I think there is always danger of tainting the product where you have a large pig pen near the factory. It is better to have the pig pen half a mile away from the factory. I certainly think it is a mistake for any factory to build a pig pen close to the factory. But if that plan were adopted, I think there would be very little danger from it.

A Member: Is it possible for our very best cheesemakers to make first-class cheese out of tainted milk?

The President: Now, James, you know better than that. (Laughter.)

A Member: I am aware of that, but I want to get our cheesemakers wakened up.

As long as the cheesemakers allow the farmers to put their foot on them, and make them pay for tainted cheese as they have always done, just so long the farmers will not take care of their milk, because the poor cheesemaker is going to shove his hand down into his pocket and pay for the cheese. (Applause.)

Mr. Publow: That involves a big question. I said in the winding up of my report that there are three difficulties in cheese—flavor, texture, and finish, and I said to overcome this you require the co-operation of the farmers, the factory men, and the makers. You ask the question whether fancy cheese can be made from tainted milk, and I say it cannot be done. Thousands of cheese go through that are tainted. This dairy business is the main business of the farmers of this country. It is not enough to get rid of your milk, and to be satisfied if it is not sent home to you. It is your duty to see that your cheese is in fine condition when it reaches the consumer, and not merely when it passes the buyer. I wish, as Mr. McGillicuddy said, the backbone of the maker was a little more to the front. (Laughter and applause.) They have a grievance, there is no doubt about that; but there is not union enough among the cheesemakers of this country. (Hear, hear.) Whether it is because of the competition or not, I do not know. You are placed on that whey stand for the purpose of serving the men who produce the milk. You may have plenty of men who are sending you first-class milk, but you take in twice as much that is not in that condition, and you are not using these people fair, and you are not being fair to yourself. Now, stop it; and just as soon as you stop guaranteeing the cheese and becoming responsible for the carelessness of other people, you will make one of the greatest movements in this industry. Just as long as the farmers of this country can have their milk placed upon your hands in improper condition, they are going to do it. I do not want to relieve the cheesemaker from any responsibility. I think it is perfectly right to hold them responsible for any carelessness in any way, but it is not right to ask them to pay their good money for the carelessness of other people. Let the farmers of this country do what they know to be right. You should not undertake to make cheese in the factory and be responsible unless it is a first-class factory, the water good, and the drainage in first-class condition. Do not undertake to make first-class cheese with second-class conditions; make them give you the proper material and the proper factory. Most of the makers in this country are in the business to make a living. Their reuptation is at stake, and they are endeavoring to do the best they can, and you are driving the best men out of the business. Please stop it. Show me the man who can stand up here and say he knows all about the cheese business.

The President: Stand up. (Laughter.)

Mr. Publow: Why do they establish dairy schools all over this country? For the purpose of educating men to serve you well. If we have learned anything, we have learned that you must have good material, and we cannot improve any more unless you give us better material and better factories. You are protected better now than you ever were before. These instructors who are sent to the factories are sent there for the purpose of seeing that you are well served. They have talked of a union of cheesemakers, and you will force them into it unless you do something yourselves. I have known cheesemakers who have lost practically every dollar they have made when it was not their fault at all. They are afraid to send back the milk when it is not in proper condition. Why do you not stand up and say: "I will not take from patrons the milk that has been sent home from other factories."

The President: If you will show me the fellow that takes a can of milk that was rejected by another factory, and if you will bring him to me, I will grind him into powder. (Applause.)

Mr. Publow: At one factory I know, the maker was having serious trouble. The cheese was not being rejected, although they were not fine, and they developed into "stinkers," though they were sold early, and they looked all right. The instructor

went to the factory and made a fermentation test, and he found most of the milk bad. They had a meeting of the patrons, and asked if they would do better. Some of them said they would, and some said they would not. They gave them four days to remove their cans from objectionable places. After the four days were up, they drove over the ground again, and some eight or ten had not removed their cans, and they refused to do so. They said they would give them two days longer, and if they did not, they would refuse the milk. And they did refuse the milk, and these patrons went to another factory, a factory that used to have fairly good success. But from that day that the milk went to the factory, they have not had a cheese go through ; and from the day they were rejected from the other factory, they have not had any more trouble, and the cheese have been well-scored, and the maker has won three first prizes. (Applause.)

Mr. Derbyshire : Do you think that man who received the milk that had been rejected from the factory will ever see the Kingdom? ("No, no," and laughter.

Mr. Hodgson : Would it not be better for him to keep that milk and put it into a separate vat and make it into cheese, or would you have him pour it out on the floor and do something else with it ? I would like to have a suggestion on that line. You have got to give the maker some instructions as to what to do, so as to stop that kind of material coming into the factory once and for all.

A Member : Send it home.

Mr. Publow : Of course, the only way to stop it is to refuse taking it in. I would not send the milk home at all times. Lend your assistance to have it all right, and if you can get it right, do so. Make the cheese for them, and let them take it for what it will fetch. People send a lot of leeky milk to the factory. They say the cows go into the woods, and they cannot prevent them from eating the leeks. Take the milk in, and make it up, and if the cheese sells for the market price, all well and good. If it does not, let them take what it is worth. If the people knew they are responsible themselves, it will make a great deal of difference, and you will soon get rid of the trouble.

Mr. Hogdson : You would not put that milk in with the good milk ?

Mr. Publow: No; I certainly would not ; because if he does that he will certainly spoil the whole business. Any maker that intentionally takes in a can of bad milk and mixes it with good has a right to stand the loss.

A Member : I would like to ask as to the advisability of licensing factories.

Mr. Publow : I think it would be one of the best things you could do ; but I do not think it should have to be done. I think the factorymen should make the conditions proper, and if they will not do that, then we should have legislation to protect the men who are doing what is right. There are lots of men who are doing what is right, and others are ready to do it, and those who will not should be made to. Licensing factories would be no hardship to any man, and I think that it would be the best thing that could be done. Our American cousins have gone that far. They insist that factories should be inspected, and in a sanitary condition before they are allowed to make cheese. I would not stipulate any size of factory, but I would make the conditions that you should have a good factory.

A Member : Do you not think that the poor factories can be traced to the patrons themselves ?

Mr. Publow : The impression I got this year was that the average factory man throughout the country is willing to build you a factory and put it in shape if you give them enough. I think the farmer is largely to blame. I thing we should go to the farmers and explain these things to them. We have kept things back from the farmers too long.

A Member : You tell the farmers one thing one year, and another thing the next. The man who is sending the best milk for the last five years to our factory is the man who dips his milk till it is cool; and now you tell me to-day not to dip it, but

to put the milk in the cans and put the cans in the ice house, and keep the animal heat in it.

Mr. Publow: You are mistaken; you do not know for sure his milk is the best.

A Member: The boys all want to drink it when it comes to the factory.

Mr. Publow: Well, it may appear to be good milk, for aeration is a splendid thing, and putting it into an ice house does not guarantee that it is cooled down quickly. Get the dairy thermometer, and see that it is cooled before you cover it.

A Member: How do you cool it?

Mr. Publow: By setting it into water and stirring it at the same time; either cold water or ice will do.

Mr. Lawson: I have had some experience in cooling milk, and the best way I have ever found in this: I always take out a double amount of cans. I put my milk in the cans, and set the cans in water, and we stir it till it cools down. We have an ice box close by the milk stand. We have a large trough that will hold water up to about middle ways of the can. I put in enough water and ice, so that it will reach to the top of the milk, and I place my cans in there. For Saturday, and on Sunday morning, we use new cans. They go in the same box, but they are not put in until the heat is taken down a certain amount. After it is cooled, we cover it up. We have cloths, and cover it up, and it sets there till Monday morning, and it comes out perfectly fresh.

A Member: In hot weather will you not have to take that water out?

Mr. Lawson: I never do. I replace the ice. About noon I generally go to the ice house and fill the box again. I put ice in Saturday night and Sunday morning. Of course, it depends on the weather. I never lost milk but once, and I think that was the fault of the cows.

Mr. Publow: Please do not go away with the idea that you should cover the milk up when it is warm. Cool it down first, before you cover it up, and while you are cooling stir it. There is nothing to be gained by exposing milk to the air other than cooling it. Nothng is to be gained by dipping milk, other than cooling it. There is a danger in dipping milk if the place is not smelling clean. Everything will be accomplished by stirring the milk; it keeps the cream from forming, and it allows the heat to escape. You can make more cheese out of the milk if you will stir it, and not churn it too much. Cool it as quickly as possible after you get it from the cow; do not wait for an hour or two. After it is cooled down, lower the temperature of the atmosphere, cover it up, and keep it cool.

A Member: What would you stir it with?

Mr. Publow: With a sanitary dipper. Get the dipper made with a solid handle, so that nothing will get into it.

A Member: Is it a good plan to keep milk in pans setting on a cool cellar floor?

Mr. Publow: The smaller quantity of milk you have the better it will keep, but if it is set in that way the cream will gather.

A Member: Do you not think it wise not to put Sunday morning's milk with Saturday night's?

Mr. Publow: Yes.

A Member: Would you advise discarding aerators altogether, and using the cooling system? As I understand it, we have no use for the aerators at all, and all we want is to cool and stir.

Mr. Publow: It is the same thing. What you accomplish by aeration is cooling. But we find throughout this country that it is not sufficient. You depend on aeration of the milk. If you go over it often enough it will bring it down; but it will not keep the milk sufficiently sweet. The average milk in the country in the summer time is too overripe—that is the great fault—and the cheese is inclined to be acidy. The average farmer has twice as much milk as he had several years ago. Another thing we have had is the bad conditions existing in this country for years, and the fac-

tories are seeded with that undesirable fermentation, and it is more important now to cool the milk down.

A Member: Does it take more milk now for a pound of cheese than it did years ago?

Mr. Publow: Yes; due largely to that cause.

A Member: What is the cause of milk being fermented and still sweet?

Dr. Connell: In answer to that question, I might say there are a number of bacteria that can ferment the milk without causing any acid. They curdle the milk without producing any acid, and that accounts for the milk being sweet while curdled.

A Member: Do you think the atmosphere would have any effect on that milk?

Dr Connell: I do not think the atmosphere would have any effect.

A Member: I have frequently found, on a close, muggy night, where the milk was in a close place, and no circulation of air, that that would happen.

Dr. Connell: When you have a close, muggy night, you have a warm temperature, and these are the conditions favorable for bacterial development; consequently, if these organisms were present, it would be the favorable condition in which they would develop, and that would account for that condition.

Mr. Singleton: It is very important that we should not go away from this question of aeration with misleading ideas. It is quite apparent that we are listening to different instruction with regard to management of milk that we have listened to before. We were told some years ago that we should aerate the milk, and we were told that by doing so we brought the milk in contact with the oxygen in the air, and that that helped to get rid of some of the impurities. To-day, it is sufficient to stir the milk while it is cooling, and I believe, Mr. Chairman, that is right. I came to that conclusion years ago when on a farm attending to large cans of milk, and I believe the difficulty in this matter is, that on large dairy farms it is impossible to get a proper place in which to aerate the milk. If we can get it away from the impure atmosphere, I suppose it would be all right; but the conditions are so changed that it is a difficult matter to get a proper place to do it, and consequently the best thing is to stir the milk while you are cooling it, and to cool it quickly after milking. I have had quite an experience on the farm for some years in handling milk. We had a large herd, and we kept our milk over from Saturday till Monday, and my experience has been that the Saturday night's milk was the best. We kept it in the same way that this gentleman speaks of, and that is the way I would like all farmers to keep their milk. Up-to-date farmers in the Brockville section are doing it in that way, and they do not, as a rule, require ice, and they are fetching their milk to the factories in prime condition on Monday morning. They have large tanks, and fill them with water, and place the cans right in there. They put the milk in these cans as it comes from the cow; one man gets on the pump handle and another man on the dipper. I do not think a man is hurt very much in filling that tank with water. By the time the tank is filled up, the milk has been stirred and first cooled down to the temperature of the water, and after that it is covered up. I would not recommend throwing a cloth over it. We cover the tank up so that there is no possibility of the outside air getting into it. The atmosphere on the 12th of July throughout the day is possibly from 90 degrees to 95 degrees, and you want to have a thick cover to prevent the heat from getting in. When you open up your milk on Monday morning, you will find there is no cream there; that is the ideal way of keeping milk. I want Mr. Publow to express himself a little more strongly on the question of making up milk on Saturday nights. I know that there is a strong feeling in one or two sections to have the boys make up the milk Saturday night, and it seems to me it is an unreasonable and unjust thing for the farmers to ask the cheesemakers to do.

A Member: Is it possible to take in the milk at 6 o'clock Saturday night and have it out again at 12, and make a fine article of cheese, such as we want to send over to the other side? Some of our cheesemakers say they can do it, and one man

has been doing it for two years. I would like to hear some expression on that point.

Mr. Publow: It is the same thing over again; the cheese merely goes through without being rejected. Regarding covering the milk, I would just as soon have a nice, clean plank as a cover for some of these water tanks. I have gone to places where they put the cans into the tanks, and the cattle came and drank there, and the smell was worse than in the barnyard. Regarding making cheese Saturday night, do you know what I think is bringing that about? The factories are not large enough, and the makers are hurried, and they have not got sufficient help on Monday morning to handle the milk, and they prefer to take it in Saturday night instead of hiring an extra man on Monday. We know the trouble we have on Monday morning; the milk is usually over-ripe. It would be better if the people would take proper care of the milk at home, and bring it to the factory Monday morning. I cannot make good cheese in such a short time as you say; I cannot have a true type Cheddar cheese. We can make cheese that would pass inspection at Montreal, but there is too much of that kind of work done. You sell a cheese in two or three days after it is made, and you do not care a snap about the man who has to eat it.

A Member: We have one of the best factories in the Dominion in our county, and it has just been hinted that system might be adopted of making up the Saturday night's milk into butter.

Mr. Publow: That could be done.

A Member: If we had some intelligent cheesemakers who could get up and impart what they knew to the farmer, I think it would be a good thing. I have yet failed to find a farmer who did not co-operate with me if I went to him like a gentleman and told him his milk was not up to what it should be. In one of my factories there has been a motion put on the books that we would not take milk from rusty cans. The patrons said they would act with me in that manner, and they put the motion on the books that any cans that came to the factory that was unfit to send milk in we were to send it home. I was told to send home any milk that came there that I did not consider fit to make first-class cheese, and if I did not send it home I am to be fined $5 for not sending it home. I feel that the farmers are co-operating with me, and we hope to have gilt-edged cheese during this season. I think if something of that kind was done, it would help the weak-kneed cheesemaker and the cheesemaker who does not have his backbone far enough to the front.

THE PRESERVATION AND SAFE TRANSPORTATION OF BUTTER AND CHEESE.

By J. A. Ruddick, Chief of Dairy Division, Ottawa.

It may appear to some that my remarks are a good deal in the nature of fault-finding. I do not want anyone to make that mistake. I do not want to criticize in that respect, and I do not want the dairymen to think I am simply fault-finding, but I want to point out some things that I think will be of interest to the dairymen of Eastern Ontario.

Any means employed towards the production of pure, clean milk for the making of butter or cheese is a measure of preservation for these products, because the better the condition of the raw material, other things being equal, the longer may the finished product be preserved in its best form for human consumption. I do not propose, however, on the present occasion, to deal with this phase of the question, but will devote what time there is at my disposal to offering a few suggestions in regard to the packing, storing, and transportation of butter and cheese intended for export.

Successful and progressive manufacturers in any line endeavor to obtain full

information regarding the peculiar requirements of their markets, and they study the tastes, and even the prejudices, of the consumers. In these days of strong competition, special attention is given to the matter of style and appearance of package, because it is recognized that attractiveness is one of the most potent factors which can be employed to further the sale or increase the popularity of any product. The wise manufacturer immediately sets himself to the task of remedying defects in his goods as soon as he is apprised of the fact that they fail to give satisfaction in any particular. Now, as these rules apply quite as much to manufacturers of cheese and butter as they do to others, it will not be out of place for us to look into the matter with a view of ascertaining how well we are living up to them.

For the sake of clearness, further remarks will be divided under two heads, and we will consider the butter end of the business first.

Canadian Butter on the British Market.

Very proper questions for butter manufacturers to ask would be, How does our butter suit the British trade? What are its defects, if any, and how may they be remedied? In answer to the first question, I would say that our very finest butter gives excellent satisfaction, and it is doubtful if there is any better butter on the market. The trouble is that the quality is irregular, lacks uniformity, or, in other words, it is unreliable. A dealer may get one lot in excellent condition and of choice quality, but the next one he buys is not up to his expectations, so that when he is offered Canadian butter again he is inclined to give a price equal only to the value of the poor lot. In this way much of our butter does not receive the standing which it deserves. The butter that is of known quality, and can always be depended upon to come up to a certain standard, will be more in demand than the one which may average as good, but which is frequently of inferior grade, as well as of choicest quality. Our butter is also said to deteriorate very quickly after it is landed on the other side, and that being so, dealers are not encouraged to trade in it. I want to emphasize the importance of pleasing the British merchant as well as the consumer. The merchant is inclined to handle and push that particular butter out of which he stands the best chance of making a profit. It is reasonable to suppose that he prefers to buy and sell the article which is of uniform quality and reliable in the matter of keeping. The profit in the transaction is of more importance to him than the particular grade of quality to which the goods belong.

Cause of Deterioration.

Now, let us see if we can determine the cause of these defects which are such a detriment to the advancement of our buttermaking industry by compelling us to accept from one to two cents a pound less in price than some of our competitors receive. I believe it can be stated in very few words. It is because the butter is not kept cold enough at the creameries, is exposed to heat unnecessarily in shipping to Montreal, and is not always frozen properly when it arrives there, and before being placed in the cold storage chambers of the steamers.

Mr. F. A. Knowlton, travelling inspector, who during the past season made numerous tests of the temperature of butter at the creameries, and as delivered to the refrigerator cars, reports that the lowest temperature he found was 38 degrees on two occasions, one lot being from the West Shefford Creamery, and the other from the Compton Model Farm Creamery. The highest temperature was 64 degrees, and the average of 50 lots was nearly 49. Is it any wonder that our butter lacks uniformity? Mr. M. B. Longeway, who is refrigerator car inspector at Montreal, examined over 400 cars and contents as they were opened in railway yards. He reports the temperature of the butter as varying from 46 degrees up to 58 degrees, and in a few cases as high as 60 degrees. On the whole, the refrigerator cars prevented the tempera-

ture of the butter from rising to any extent. In fact, in testing some boxes it was found that the butter was colder at the ouside than it was at the centre of the package, showing that the temperature was even being lowered. The refrigerator car service is capable of being improved, but it is better now than what the creameries provide for themselves. To prove that, it is possible for creameries to maintain a lower temperature, I need only quote the record made at the Sherbrooke Creamery from July 20th to 28th, when Mr. Knowlton had a thermograph placed in the refrigerator, which gave a temperature varying from 32 degrees to 36 degrees. A thermograph is a recording thermometer, which can be locked up and left to give the actual temperature at any moment during a period of two weeks or less. It would pay every creamery to have one of these instruments. If the owner of any creamery in this district would like to have a thermograph placed in his refrigerator for a week or so next summer and will apply to me at Ottawa, I am authorized to say the request will be complied with as far as possible. Creamery owners should give this matter of temperature in the refrigerator very close attention, and if I were a patron of the creamery I should want to know how such things are attended to, because patrons have a direct interest in the matter. The butter belongs to them. If any person wants to know the average temperature of the creamery refrigerator, let him insert an ordinary dairy thermometer a few inches into a box of butter which has been in the room at least three or four days. This will give a fairly correct average.

Now, I think I have said enough to show you why our butter is irregular in quality, and why some if it deteriorates rapidly after reaching the other side. After butter is packed in boxes, the length of time it will keep depends almost wholly on the temperature at which it is held. The age of butter is more properly calculated according to the temperature at which it has been stored, than from the date on which it was made. Butter which would turn out well after several months' storage at 10 degrees or under, might become quite stale and rancid in a few weeks at 40 to 50 degrees. Butter may be held at the creamery at these high temperatures for a week or so, and not show much deterioration. Nevertheless, the fermentations which produce bad flavors, rancidity, etc., have been doing their work, and shortening the life of the butter. These fermentations may be checked when the butter is placed in cold storage at Montreal or on the steamer, only to start up again with renewed vigor when the butter is exposed to high temperature on the other side.

Canadian *vs.* New Zealand Butter.

Canadian butter suffers some by comparison with New Zealand. The comparison is really not a fair one, because New Zealand butter is all grass butter, and it arrives fresh in Great Britain during our winter season so that any Canadian butter which comes into direct competition with it, must necessarily be winter-made or held summer stock. New Zealand butter, however, has a reputation in England for keeping quality, and it will be of interest to us to learn how that reputation has been acquired.

In the first place, having no natural ice, the most of the creameries are equipped with mechanical refrigerating machines. Their creamery refrigerators are kept fairly cold, but they have no refrigerator cars such as we have. The secret of their sucess lies in the fact that the butter is shipped from the creameries twice a week to cold storage, where it is immediately placed in a chamber at 10 degrees, and held there until forwarded to England. It must be at least four full days in store before it is shipped, to give time for thorough freezing to the centre of the package. Although the butter is sometimes carried several hundred miles to the London steamer, its temperature must be below the freezing point of water; otherwise it will be refused, and be sent to a cold storage to be refrozen. The temperature in the chambers of the steamer is about 10 degrees. It is placed in the chambers with frozen mutton, which must be kept at a low temperature. It is easy to understand that buttter handled in such a

manner, although it is over two months old when it reaches the market, will have more life in it than some of our butter which has been held two or three weeks in a creamery at a temperature of 40 to 50 degrees. If Canadians expect to compete with the Danes, who are so close to the market, and with New Zealanders, who employ such low temperatures almost from the day their butter is made, it is time they were making a more serious effort to improve matters at their end.

Let every creamery owner give this matter his earnest attention during the coming season. If he finds that with proper management the temperature of his refrigerator cannot be kept down to at least 36 to 38 degrees, the insulation should be improved until it can be. It is well to remember that some buttermakers are like the one at a certain creamery where Mr. Knowlton left a thermograph for a week last summer. He said he would be glad when the infernal thing was gone, because it was a lot of work to keep the temperature down to make a good record. I am sorry to say some proprietors are like the man who wrote to me the other day in reference to the third payment of twenty-five dollars on his creamery bonus. He wanted to know "if he would be required to maintain as low a temperature next year, as he was during the past year in order to get the $25. If so, it would be necessary to put up more ice." The paltry $25 was of more importance in his eyes than the matter of keeping a low temperature for his butter. This man has no sense of proportion.

Mould on Butter

Complaints are received from time to time regarding the appearance of mould on the parchment linings of butter packages. In some cases it is said to have even penetrated the butter for some distance. Mould is a minute and low form of plant life. It grows from seeds, which are called spores, which develop only in the presence of moisture, and where they have a supply of suitable food. Mould will grow rapidly on damp wood, hence the necessity of keeping the interior of a creamery, and especially of the refrigerating room, as dry as possible.

Poorly constructed refrigerators are apt to be damp because the warm air which gets in from outside carries moisture with it, which is deposited on the cooler surfaces of the walls, floors and packages. Frequent and prolonged openings of the doors also causes dampness.

It would be a good thing for the creamery owners as well as for the trade generally, if it were compulsory to have all creameries thoroughly disinfected every spring before operations begin. The spores of mould, and other germs which cause bad flavors, are destroyed if the work is properly done. It is a comparatively simple and inexpensive operation, if the following plan is adopted :

Methods of Disinfection.

Wash the whole interior of the creamery, including walls, ceilings, floors, posts, shelving, etc., with a solution of one part of bi-chloride of mercury to one thousand parts of water. Apply with a brush, and scrub well wherever applied. The bi-chloride of mercury (corrosive sublimate), may be procured in tablet form of the right strength to make the above solution by adding one tablet to every pint of water used. I need scarcely say that this substance is a very deadly poison, and must be handled with every care and precaution. Formalin may also be used either as a spray or by being allowed to evaporate from a sheet of cotton suspended in the room, when the doors, windows and other openings are tightly closed. It requires about five ounces of pure formalin to disinfect 1,000 cubic feet.

Prevention for Mould on Butter.

As a preventive of mould on butter, the following practice is highly recommended : Soak the parchment paper linings, immediately before using, in a saturated brine to which has been added three ounces of pure formalin to the gallon of brine. Place the

paper in the boxes without drying. Keep the brine in a special covered vessel. Boil the brine every week, and add fresh formalin in the same proportion as at first. This treatment has been found to be effective in the Government creameries in the Northwest Territories, where there was a great deal of trouble with mould at one time, and has given good satisfaction wherever it has been properly carried out.

Care of Parchment Paper and Empty Boxes

I believe that much of the mould on butter is due to the infection of the parchment paper, as it lies about the creamery without any protection, and not always in a dry place. The spores do not develop on the dry paper, but as soon as it comes in contact with the butter there is sufficient moisture to encourage the growth on the mould. The parchment paper and empty packages should be kept in a thoroughly dry, clean place.

Only the very best pure vegetable parchment paper should be used. Inferior paper encourages the growth of mould, and does not protect the butter. Much of the paper used is too light in weight. A ream of 500 sheets, measuring 50x12½ inches, should weigh at least 40 pounds, and the same number of sheets, 33x12½ inches, should weigh not less than 30 pounds, with other sizes in proportion.

Boxes and Marking.

A great deal might be said under this head, but it hardly belongs to the present topic. I merely want to emhpasize the importance and value of a neat, strong and attractive package. Canadian butter suffers some in this respect by comparison with that of other countries. I have been informed that spruce lumber is shipped from Canada to the Argentine Republic, and there manufactured into butter boxes of a much superior class to those used in this country. If the statement is true—and I believe it is—the fact is not creditable to Canadians.

Delivery of Butter to Railway Stations.

Every precaution should be taken to see that the butter is delivered to the stations at such an hour as to make the closest possible connection with the refrigerator cars. An hour's exposure to the heat of a warm summmer day means positive injury to the butter, and shortens its life. It would be better to have all the butter carried to the station by contract, so that some man would have a properly equipped waggon, with a cover for protection against sun and rain. It would be possible to insist on having such a waggon always clean. The manager would have authority and control over a contractor, but he has very little over the independent patron, who takes the load when it suits his convenience, very often in an unsuitable waggon, dumps it down at the station without any consideration except that of getting rid of it as quickly as possible. The cost of hauling the butter to the station should be considered a part of the operating expenses in all creameries.

Cheese

I wish to refer briefly to the cool-curing of cheese, with particular reference to our work at the central cool-curing rooms. The plan of operation for these curing-roooms is pretty well known, and, as I have explained it fully at a previous convention, I shall not take up your time by going over the same ground again. It is not necessary either to describe the buildings, as Bulletin No. 7 of the Dairy Division, Ottawa, gives full plans and specifications, and may be had for the asking. I would like, however, to make one or two explanations in regard to these curing-rooms.

In the first place, they are not cold storages. The lowest temperature which was aimed at in their construction was 55 degrees, and such a temperature is far from being cold storage. The curing of cheese in these rooms involves no departure from what has been practised at certain seasons of the year ever since cheese-making began in this country. It simply means providing September conditions throughout the whole summer, and thus securing a September quality of cheese for the same period. When cool-

curing becomes general the classification as we have it now, according to the month of manufacture, should, and will, I think, entirely disappear. Neither is the central curing-room idea as exemplified in these four establishments an attempt to have such a plan generally adopted. It may be followed in some localities, but so far the tendency is for each factory to make provision for cool-curing its own cheese.

The curing-rooms were not ready for use in 1902 until July 1st, but from that time until September 30th cheese were received every week day until the latter part of September, when they were collected only every second day. During these three months 26,531 cheese were received at the four places from 30 factories.

During the past season 47,205 cheese were handled from 54 factories during the period from May 18th to September 30th. Table I. gives the details of the two seasons :

TABLE I.

Curing rooms.	No. of factories.		No. of cheese sent.	
	1902.	1903.	1902.	1903.
Woodstock	9	7	11,657	14,334
Brockville	10	9	6,646	9,536
Cowansville	14	17	6,266	14,080
St. Hyacinthe	4	21	1,964	9,255
Totals	37	54	26,531	47,205

THE SAVING OF SHRINKAGE.

As the cheese were collected from the factories, a number from the same vat from all the factories were set aside each week, and after being carefully weighed to two ounces one was placed in the curing-room, and the mate to it was put in a room in the upper story, where the temperature was not controlled, and was comparable to an ordinary curing-room. When the cheese of the corresponding week were sold, these cheese were again weighed as before, and the difference in shrinkage noted. From this difference the savings in shrinkage on the whole shipment was easily calculated. Table II. gives the actual saving of shrinkage on all the cheese received, and the value of this saving at the selling price of the cheese. The value given is the amount collected from the factories.

TABLE II.

Curing room.	Lbs. cheese received.	Percentage of shrinkage saved.	Lbs. shrinkage saved.	Value at selling price.
1902.				$
Woodstock	906,560	1.53	14,327	1,424 13
Brockville	526,950	1.52	8,050	814 48
Cowansville	494,286	1.34	6,650	662 02
St. Hyacinthe	143,190	1.66	2,386	238 41
Total	2,070,996	1.52	31,403	3,139 04
1903.				
Woodstock	1,128,442	1.40	15,823	1,604 49
Brockville	761,599	1.27	9,689	1,011 39
Cowansville	1,137,159	1.80	13,694	1,497 44
St. Hyacinthe	711,076	.95	6,816	699 76
Totals	3,738,276	1.23	46,022	4,813 08

The saving of shrinkage during both these seasons was certainly less than it would be in an ordinary season, because of the remarkably cool weather, and high relative humidity which prevailed, and these are the two conditions which affect the shrinkage.

It will be noted that there was less savings of shrinkage in 1903 than there was in 1902. The difference is accounted for as follows :

(1) The cheese were received after May 18th instead of July 1st.

(2) As a rule, the cheese were sold earlier in 1903. The tables give the actual shrinkage for the time the cheese were in the curing rooms.

(3) The cheese were left at the factories one day after they were taken from the press. This allows the surfaces to become well dried, and there is less tendency to mould.

The saving of shrinkage during the warmest weather was very much greater. Table II. gives a typical example.

TABLE III.

Relative of cheese made from the same milk and curd at different temperatures. (Unparaffined.)

Curing temperatures	60-30 degrees.		58 degrees.	
	lbs.	oz.	lbs.	oz.
Green weight, July 8th	85	1	84	9
Weight, July 21st	83	12	84	4
Weight, August 26th	82	..	83	8
Loss in weight	3	1	1	1

But the saving of shrinkage is only a minor consideration. The great improvement in quality is the main thing. Altogether some 1,120 pairs of cheese were set aside as already mentioned, for testing the shrinkage, one being cured in the cool-room and the other in an uncontrollable temperature. They have been examined and compared by a large number of cheese buyers, cheesemakers, and others, and in every case the cool-cured cheese had been pronounced the best in quality,

Mould on the Cheese.

When the curing-rooms were first used, there was some difficulty in preventing the growth of mould on the cheese. There is usually a little trouble of this kind in a new curing-room, and we had our share of it. The relative humidity ran from 88 to 84 per cent. We sprayed the rooms freely with formalin, and allowed it to evaporate from sheets of cotton suspended in the room until it drove everybody out of the place. Finally we adopted the paraffining of the cheese. We found it a decided improvement to leave the cheese in the factory curing-room for one day after they were taken from the presses. I would strongly recommend that that provision should be made in connection with all cool curing-rooms, to have the cheese held for one day in a dry and comparatively warm atmosphere. Our experiments show it is not safe to leave the cheese longer than one day at the high temperature.

In the spring of 1903 the whole interior of the curing-room, including floors, walls, ceilings, posts, and shelving, was thoroughly washed with a 1 to 1,000 solution of bi-chloride of mercury (corrosive sublimate), and the shelves were treated with this solution, or a 10 per cent. solution of formalin every time they were washed, all summer, and that was, of course, every time new cheese were placed on them. Following this treatment there was no trouble with mould on the cheese up to the time they were paraffined, and that was often two weeks after they were received. I strongly recommend this practice to all cheesemakers who have trouble with mould, but would suggest the formalin for using on shelves, on account of the bi-chloride of mercury being such a deadly poison, and therefore always dangerous to have about the place.

The Paraffining of Cheese.

The paraffiniing of cheese, when properly done, is more of a measure of preservation than most people seem to be aware of. It prevents the cheese from moulding and losing in weight by the evaporation of moisture. The retention of the moisture preserves the waxy texture of the cheese. It has been claimed that the same result would be reached by leaving enough moisture in the cheese when made to allow for the shrinkage. That is not practicable, as any well-informed cheesemaker knows. To leave so much moisture in the curd would result in serious defects in the cheese. Table IV. gives the comparative shrinkage of two cheese made from the same milk, cured at the same temperature, one paraffined and the other unparaffined.

TABLE IV.

Relative shrinkage of cheese made from the same milk, paraffined and unparaffined, and both cured at 58 degrees.

——	Paraffined.		Unparaffined.	
	lbs.	oz.	lbs.	oz.
Green weight, July 25th	84	4	84	2
Weight, August 1st	84	0	83	14
After paraffining, August 1st	84	6	..	..
Weight, August 28th	84	2	22	12
Loss in weight	..	2	1	6

Retailers in Great Britain have claimed that they should be allowed something in the weight of paraffined cheese, alleging that there is more shrinkage when these cheese are cut than there is with unparaffined cheese. In order to get some information on this point, some experiments were conducted at the Government curing-rooms, with the following results :

Test No. 1.

Comparative shrinkage of paraffined and unparaffined cheese after stripping and cutting.

Date weighed.	Paraffined.		Unparaffined.	
	lbs.	oz.	lbs.	oz
July 14th	79	12	77	2
August 18th	79	4	75	4
" 18th	78	12	75	0
Loss in stripping	0	8	0	4
Loss in 2 days after stripping	0	4	0	4

Test No. 2.

Comparative shrinkage of paraffined and unparaffined cheese after stripping and cutting.

Date weighed.	Cool cured paraffined.		Ordinary cured unparaffined.	
	lbs.	oz.	lbs.	oz.
October 26 h	77	6	77	10
" 26th	76	12	77	4
" 30th	76	3	76	14
Loss in stripping	0	10	0	6
Loss in 4 days	0	9	0	6

The cheese were made on May 27th, and were therefore five months old when stripped.

It will be seen by these tables that there is practically the same shrinkage in both paraffined and unparaffined cheese after they are stripped and cut in two. Of course the paraffined cheese shrinks more in the stripping, the difference being 4 to 6 ounces, which is simply the weight of wax applied to the cheese. The saving of shrinkage on stored cheese will amount to a very large sum and the quality of the cheese is preserved, because when the moisture is retained, such cheese are more acceptable than those which have become dry and crumbly.

The paraffining of cheese has no connection with the cool-curing cheese, and the two things should not be confused. Of course paraffining is only possible where the cheese are kept at a comparatively low temperature. It would not be practicable to attempt paraffining where the cheese are kept in an ordinary hot curing-room. Paraffined cheese have come in for some criticism, but so far there has been no real objection offered.

I would not advise factories to adopt paraffining unless they are assured that no objection will be made on the part of the buyers. It is one of those things which might be taken advantage of on a bad market, until such time as it becomes firmly established. There was a time when the end cloths were objected to, but now they are asked for. All innovations meet with more or less objection at first.

For the information of any who may desire to try paraffining, I give the method followed at the Government cool curing-rooms during the past season. The cheese were placed on the shelves and allowed to remain there for a week or ten days, when they were paraffined, weighed and boxed. In paraffining, the treatment is as follows :

Refined paraffin wax having a melting point of 112 to 115 degrees Fahr., is melted in a suitable tank made of tin or galvanized iron surrounded with a steam jacket, and the temperature raised to at least 200 degrees. The cheese are placed in a rack on their sides and dipped into the hot wax, where they are allowed to remain for ten seconds more or less, according to the thickness of the coating which remains on the cheese. Four or five ounces of wax is sufficient for the purpose. If it is found that more wax sticks to the cheese, then they are allowed to remain a few seconds longer, which has the effect of heating the surface of the cheese and causing the wax to drip off more freely when they are lifted out.

Cheese Boxes

I cannot close without a word or two about cheese boxes. Boxes are necessary to protect the cheese from injury in transportation, to facilitate their handling, and to permit of their being piled several tiers deep in a warehouse without being crushed out of shape. Without the boxes the cheese could not be delivered in Great Britain in a presentable condition. Now, if it is desirable to have cheese in boxes at all it is important that the box should be strong enough to reach its destination in a sound condition.

A great many shipments of cheese are landed on the other side with 25 per cent. of the boxes broken. Indeed some reports from the inspectors show a larger percentage. This simply means that one-quarter of the money paid for boxes has been spent to no purpose. And that is not all, for the broken boxes in a shipment, while detracting from the actual value of the cheese which they once contained, make the whole lot less attractive to a purchaser.

What are the reasons for this unsatisfactory state of affairs? In the first place, we have increased the weight of our cheese and at the same time reduced the strength of the box, by using thinner veneer and an inferior quality of elm.

It is evident, also, that there are many boxmakers who have never properly learned that trade, as a large proportion of the boxes is only half put together. The increasing cost and scarcity of elm, and the demands of cheese manufacturers for a cheap box, have induced the veneer cutters to reduce the thickness of the veneer, until much of that which is now offered for sale is entirely too flimsy for the purpose. It should never be cut less than full 5 to the inch. A great deal of it is 6 and some even 7 to the inch.

Another fault in the veneer is that the log is often not boiled sufficiently to soften the wood; consequently, the veneer knife shatters it while cutting, and gives it a tendency to split easily. Another result of insufficient boiling or steaming is that the salts of the wood are not extracted; consequently boxes made from such stock mould very readily.

When I began buying boxes for the cool curing-rooms I insisted on getting heavy selected veneers. The box-makers tried to persuade me to accept the thin veneer, some claiming it would stand more rough usage than the thicker material. I've had to give 2 cents above the regular price for such boxes, but it paid to do so, for the reports on shipments from the curing-rooms showed only one and two per cent. broken. Of course there is this about these shipments, they were all carefully loaded into the cars, and not left standing four or five tiers high, to be thrown down and smashed by the first shunt. Hundreds of boxes are broken that way.

Now, I believe there is almost enough wasted in trimming boxes, either at the cheese factory or at the warehouse, to make up this difference of 2 cents. Boxes are now worth at least 1 cent. per inch in depth, and that part which is cut away is absolutely wasted.

If boxes are not thoroughly dry when put on the cheese, the growth of mould is started. This is particularly the case in cold weather, when the boxes dry slowly.

In aiming to have the cheese fit the boxes without trimming, it is well to remember that a box which measures 12 inches deep, when newly made, will shrink to 11½ inches as it dries out. The same box will expand again to nearly its original depth after it has been in a warehouse for a week or so, because it absorbs moisture from the cheese. In fitting dry boxes to the cheese, it is necessary, therefore, to have the cheese project at least ¼ of an inch above the edge of the box. One would think it hardly necessary to call attention to the importance of having the box of the proper diameter to fit the cheese snugly. No box will stand the handling, that is not supported firmly by the cheese on the inside.

I have dealt with the factory end of this question. There is fault to be found in other

quarters, and we are after those who are responsible, at the proper time and place.

A Member: How would shavings do to pack ice in an ordinary ice house?

Prof. Ruddick: I think they would be good unless they got soaking wet. Any material that gets wet is not so good, because they allow the heat to pass through. I think shavings would be expensive, because you could not use them over again a second year. I think it would be cheaper to use sawdust or hay or straw. Out in the North-west Territories, where we cannot get straw, we use coarse marsh hay, and it is better to remove from the ice than sawdust. In an ice house of this construction it must not be covered.

A Member: Would it not be better to leave the cheese in the dry room for three days before putting them in the cool room?

Prof. Ruddick: No; it is not safe to leave them longer than one day. We tried that and found it objectionable.

A Member: Do the consumers in the old country find fault with paraffined cheese?

Prof. Ruddick: Yes, they have; but I have never heard any objection raised that had any reason in it.

LICENSING OF CHEESE FACTORIES AND CREAMERIES.

Mover by Mr. Dargavel, seconded by J. W. Hyatt: "That in the opinion of this Association the best interest of dairying in Ontario would be advanced by the licensing of cheese factories and creameries, and with that object in view a committee consisting of the undermentioned persons be appointed to collect information and make a report and if thought advisable prepare a draft bill for presentation to this Association at its next annual meeting, the Committee to have full power to lay the matter before the Ontario Dairymen in such manner as they see fit. Said Committee to consist of the mover, Henry Glendinning, G. G. Publow, and the President and the Secretary of the Association."

Mr. Dargavel: As this is only in the nature of a notice of motion, I do not know that it is advisable to speak of the question at any length. The time for speaking will be when the matter comes up at our next annual convention. I may say, however, that the principle of licensing factories of almost every kind is well established. According to the Ontario Factories Act, any factory where five employees or over are employed, comes under the law of licensing factories. I also understand that bakers in cities are licensed, and if the baker is licensed I cannot see why thes ame principle should not apply to cheese factories. The output of a bakery compared with the output of a cheese factory is very much less in intrinsic value, and they both produce food products, and I cannot see why the same principle should not be adopted. I believe it will be in the interests of the dairymen and the farmers and everybody connected with this great business that some move should be made in this direction, and if this meeting sees fit to adopt this resolution, and appoint this committee and give them power to collect what information they can in the meantime, I believe at the next meeting of this Association we will be able to deal intelligently with this question.

A Member: Have you had any experience in square boxes?

Prof. Ruddick: No.

A Member: Why not license the boxmakers?

Prof. Ruddick: Possibly we could do that.

A Member: Has not every Township at the present time the privilege of licensing factories?

Prof. Ruddick: They could if they took it up.

A Member: We have to-day a sanitary license and the sanitary inspector inspects our factory every year in the County of Prince Edward, it may be that we are alone in that respect, but every factory in our township has to pay a license.

The Chairman: It will prevent the building of a factory at every four corners; it will stop the man who has no ability himself and who is not a competent cheesemaker, from starting a factory and taking the business away from a good man, because he is willing to make it for a cent a pound less, he will not be able to build a factory unless he has a license to do so; it will prevent men from working in factories unless they have a certificate of qualification. It will require special legislation to put that in force.

A Voice: You will never get it.

The Chairman: There is no harm to look into this and see what it means. I would just like to have the power in my hands to-day to name the site and the style of the building and the style of the man, and to see that the milk in a certain territory was forced to go to a certain place, and that it should not be sent to every place where they could get the work done for that price and where they will take the miserable milk that a first-class factory will not receive. I would make these kind of people "walk the plank." (Applause.)

Mr. Dargavel: I would undertake to say the report of that committee would bring in quite as drastic a measure as you have outlined. What I think is wanted is something to deal with the factories we have already in existence, and to see that the sanitary arrangement of these factories are such as will conduce to the making of first-class quality of cheese and to the helpfulness of the operatives of the factory. I would say that I would be in favor of dealing liberally with the subject. Let any man put up a factory wherever he sees fit as long as it meets with the requirements of the license Act, whatever that may be; we will recommnd to the Government what to do, and then it will be for them to decide on what is the best policy and just what limits they may go to. I believe we can improve the output of our cheese if we had a better class of factories and the present ones put in better shape than they are at present.

A Member: Is mechanical cold storage an improvement on ice cold storage?

Prof. Ruddick: There is quite a distinction between cheese cured at 55 degrees and 60 degrees. When you speak of mechanical cold storage you mean a temperature of about 40 degrees. What we are trying to get at are the conditions that prevail in England and Scotland, where the conditions are established for the finest cheddar cheese. We can accomplishs that without very much extra expense or without taking a very much longer time to cure the cheese. We find it took about a week longer than it did in the ordinary rooms. The experiments show some improvement in the cheese cured at 40 degrees. The objection to that plan is a commercial one—the cost of obtaining the low temperature. It takes five to eight months to cure the cheese at a very low temperature, and you would be out of your money for that length of time, and also the cost of obtaining the low temperature.

Mr. Hodgson: At what temperature was that test of the paraffined cheese and the ordinary cheese made?

Prof. Ruddick: At 58 degrees.

Mr. Hodgson: How long after the cheese had been made were they cut?

Prof. Ruddick: I think four weeks.

Mr. Hodgson: I wish you would test them on the other side and see how the cheese turned out on the counter, because we have very many complaints with regard to paraffined cheese: they say there is about four pounds out in weight. They make that claim on the other side.

Prof. Ruddick: I say that is ridiculously absurd. I have another cheese that was three months old, and we had exactly the same result. That suggestion of yours about having the cheese tested in the old country I think is a good one, and I am going to have that done.

Mr. Hodgson: They like the appearance of the paraffined cheese over there, and if you can prove that your statement is correct we will be strong advocates of that, and it may result in a great deal of benefit, and I would like to have that test made on the other side.

Prof. Ruddick: I have heard the complaint Mr. Hodgson speaks about. One man said he found a pound and a half of wax on the cheese. We have never put more than six ounces of wax on the cheese, and I think that is simply an attempt to get something for nothing the retail merchant on the other side makes the objection. I would not advise paraffining the cheese until you are satisfied you will not get into trouble on that score. I fully believe it is a good thing, and in the end it will be universally practised. It may take some time to overcome this objection. These tests were carefully conducted, and I can vouch for their correctness.

Mr. Hodgson: They complain that the paraffin, or wax, cracks, and there is a certain amount of air spaces made, and the air spaces cause the cheese to lose weight more than they would if they were not paraffined. I hope it can be clearly demonstrated that the weight does not decrease, because the cheese certainly looks handsome when paraffined.

Prof. Ruddick: We have sent a number of cheese over, and we found the weights did not shrink.

A Member: Did you ever try white shellac for coating the cheese? I understand they do that across the line.

Prof. Ruddick: They shellac the small cheese. I never heard of it being applied to the cheddar cheese.

A Member: In an article in the "Canadian Farmer" it was claimed over Mr. Ruddick's name that a mechanical cold cured cheese was not so apt to mould as a cheese cured in the ordinary ice cold storage. Is that correct?

Prof. Ruddick: I do not remember writing any article in the "Canadian Farmer" on that point.

A Member: It was in the September issue.

Prof. Ruddick: I think it must have been got from some other paper. We have two rooms with the mechanical refrigeration and the ice house. We got a drier atmosphere with the mechanical refrigeration.

A Member: It was also stated in that paper that a cool-cured cheese was worth one-sixth more than an ordinary cured cheese. It was stated Hodgson Bros. were willing to pay one-sixth more for a cool-cured cheese than for an ordinary cured cheese.

Prof. Ruddick: I know now what you are referring to. That was a statement made in the "Farmers' Advocate." It was an interview. The mistake was made in this way: Two lots of cheese were sent from one curing room, one lot of cheese cured in the ordinary way, and the others cured in cold storage. They were sent to Liverpool, and it was stated the cool-cured cheese were better, and they sold them for 1s. 6d. more, and the reporter had written it 1-6 instead of 1s. 6d., and they added to that that they considered the cool-cured cheese were very much better value at that difference.

A Member: I would like to ask Mr. Ruddick whether it is advisable to build the curing room on a level with the making room?

Prof. Ruddick: I think a good deal depends on the site; I believe a sub-base curing room would be best if you had a site that would suit that construction. I would put the ceiling of the curing-room on a level with the floor of the making room, and I would have a room above the curing room prepared, in which to place the cheese for the first day, and have some means to lower them down into the room below. It is better to have the entrance from the ceiling than on the side, because there is little interchange of air if you have the opening in the ceiling, and if you had the ceiling and the curing room and the floor of the making room on a level, you could take the cheese out on the side, and you could have a convenient opening for that purpose.

A Member: Where you could not get the ceiling of the curing room on a level with the making room, would you advise sinking the curing room a couple of feet?

Prof. Ruddick: Yes; I think I would. Of course, I see an objection to having to go down two or three steps with the cheese. An arrangement could be

made for delivering them without having to bring them up. By placing the curing room floor a little below the surface of the ground you get more cooling power from your cement floor. A great deal of cooling power comes from a cement floor in a well insulated building.

A Member: One reason I have for asking that question is that we are building a new factory this spring, and our cheesemaker wants the floor on a level for his own convenience.

Prof. Ruddick: There is no doubt about the convenience, and you have to consider the pros and cons.

A Member: Would you advocate an outside door of the curing room?

Prof. Ruddick: I would not have an outside door. I would have instead an opening to let the cheese out, and I would have it as high up as it could be placed conveniently, and just large enough to push the cheese out to the waggon platform. I can send you a set of blue print plans if you wish. You will find that is the idea suggested there.

A Member: In constructing a cool curing room, would it not be wise to cover the inside of the stone wall with paper or lumber?

Prof. Ruddick: Yes, it certainly would. You have not sufficient insulation in the stone wall. Stone is a fairly good conductor of heat.

A Member: How high would you have the ceilings?

Prof. Ruddick: Not any higher than necessary to walk in—nine feet at the very outside. I would have the first tier of shelves not over six inches from the floor. Where you have a nine-foot ceiling you can have five tiers of shelves.

A Member: What about light?

Prof. Ruddick: I recommend small windows about two feet square placed right at the ceiling; you can get good light in that way. We have double sashes, and two panes of glass in each sash.

A Member: Plenty of them?

Prof. Ruddick: One at every row of shelves on the cool side, and every other row on the other side.

A Member: Do you frost the glass?

Prof. Ruddick: No; put wood shutters on the outside, and when the sun shines in close them.

A Member: Do you put two ply of paper together?

Prof. Ruddick: Yes; I have had these curing rooms built on the same specifications, and I find there is a great deal of difference in them, on account of the way in which the work is done. Some will do the work much better than others.

A Member: Do you think it will be better to sheet with lumber and plaster?

Prof. Ruddick: I do not think lath and plaster is any use for insulation, as the air will pass right through it. I would not put lath and plaster anywhere around a cheese factory; one thickness of paper is better.

A Member: The engineer told us that lumber would warp, and it would be better to have paper without lumber than to have lumber and paper.

Prof. Ruddick: I do not find any trouble with the lumber warping.

A Member: Can you make cheese from frozen milk?

Mr. Publow: We have not had very much experience in making butter or cheese from frozen milk. I am not prepared to say that freezing injures milk, but I do not think it is wise to freeze the milk. I have found difficulty in making up frozen milk.

A Member: I have heard it said that you can get tainted milk from feeding silage?

Mr. Glendinning: I must say that so far as I have any experience in good silage, I have never yet seen milk affected by it. I have seen milk that had the flavor of silage, but they had not fed good silage; it was very far from it. There is silage and silage, but there is not the least danger from taint if the corn is put in at the proper time. But if you put in immature corn, that is full of sap, with the juice running out

of it at the bottom, the same as a cider press, you may get tainted milk if you fed too much of that kind of silage. If you have silage that is partly decomposed and moulded, there is, maybe, danger of a tainted milk; but if you will cut your corn at the proper time, that is, between the glazing and the ripening stage, and put it into the silo and keep it perfectly airtight, and feed the proper quantity of it, I am satisfied there is not the least danger whatever. Sometimes I have heard farmers say they fed such and such a quantity of silage. They fed a greater quantity of it than the cow could consume, and they gave her nothing else, and I think that is one of the greatest mistakes you can make. You might just as well feed a cow nothing else but roots. Silage is not a first-class food of itself; it needs to be mixed with something else—some dry food, such as hay and cut straw—and it requires something in the way of concentrated food, such as peameal or oil cake or ground oats to balance it up. If you feed along these lines, I will guarantee you will never have any trouble with taint from feeding silage.

A Member: What quantity would you feed a cow?

Mr. Glendinning: About 30 or 35 pounds a day.

Mr. Derbyshire: You do not advocate feeding everything around the place, including the hired girl, with silage?

Mr. Glendinning: We have found everything around the place very fond of it, and I do not know but that the hired girl would learn to eat it if we gave it to her. (Laughter.)

THE COLLEGE DAIRY HERD.

By Prof. H. H. Dean, O.A.C., Guelph.

I have always made it a point if my name appears on the programme to get there if at all possible, and I ask you to bear with me for twenty minutes, and I will try to condense what I have to say into that time. What I have to say on the production of clean, cool milk, which has been discussed both yesterday and this forenoon, I shall try to make it as short as possible. The idea in production is that you make something which has not existed before in its present form. The man who is producing milk for the manufacture of cheese and butter is making the article which has not previously existed, and if he does that in the best manner possible, he is a creator. The man has put his skill, brain, and energy into the manufacture of that product. You tell me that it does not require skill; you tell me that it does not require education; you tell me that the man who is producing milk needs only to be an ordinary man. But I say to you a man who is producing milk, who is a creator of things, is a man who requires the highest intelligence, and I say the man who is producing the finest quality of milk is doing the best services he can do for his country. (Applause.)

In the production of milk, the farmer has to begin with prime materials, using that word prime in its original sense, meaning, first materials. What are the first materials of the dairy farmer. They are the soil, the air, the water, and the sunshine. Of these four prime materials he needs only to concern himself about one of them, namely, the soil. The soil is a prime material which has cost him money; it is that which he must look after if he is going to produce milk; the air, the sunshine, and the water he gets free. A man cannot produce milk out of these prime materials until he changes them in some way or other, and for this purpose he uses certain agents, namely, plants and animals. Plants must be the best which he can produce. We have in connection with our Agricultural College an experimental farm. A professor is in charge of an able staff of assistants and a large plot of land, and a building put up for his special benefit, and he is devoting his life to the work of finding out what are the best plants for the farmers of the Province of Ontario to use. That

is a line of work which cannot be taken up on the individual farm, because it is very expensive work. Of these plants which the farmers make use of I will just mention two or three. Grass is the best plant which a farmer can use for the production of milk. You ask the old cow what she would rather have in order to produce milk of the best quality and the richest quality, and if she could talk she would say, "Give me grass." Next to that comes clover. I believe the farmers of this country have not sufficiently realized the importance of that plant clover. I understand Mr. Glendinning talked about it to some extent yesterday. The farmers of Wisconsin are growing alfalfa, or lucerne clover, and they say they are able to increase the milk by one-half because alfalfa has the necessary constituents that the cow can make use of, and which the farmer can grow cheaper than anything else. Other plants are necessary to feed the cow, such as corn, and so on.

One word with reference to the animal that is going to convert these prime materials into milk. You must not only study plants, but animals also. You must not study your cows as a herd, but you must study them as individuals. This, to my mind, is one of the weakest points in connection with the production of milk in this country, and it is where the most money is lost; because men do not study the individual animals in their herd, but regard their herd as a whole. They do not seem to realize the marked difference there is in the different animals of the herd. One cow may produce three or four times as much milk as another cow, and two or three times as much butter, and consequently be a much more valuable cow. The man who wants the best animals must first study his own peculiar conditions. There is no best breed of dairy cow; there are good and bad animals in all breeds. It is not a question so much of breed as individuality in the breed—individuality in the cow. A man must study the characteristics of the breeds in the individuals, and when he brings these two together he is the man who will have the animals best suited for his purposes. Some men are unable to give you any information about the individual animals in their herd. This puts me in mind of the story of an old gentleman who lost a calf, and he went to the country storekeeper and asked for a piece of paper and a pencil to put up a notice in the store, and he wrote the following notice: "Runned away, red and white calf, with his two behind legs black; he was a she calf; anybody finding and returns that calf to me pays me $5." (Laughter.) And there are a great many men who will give you just such information as that about their cows when you ask them, as to the individual production of their cows.

I propose to point out to you what a marked difference there may be in the individual cows of a herd. For thirteen years we have been weighing the milk, night and morning, from each individual cow in our herd. For some ten or twelve years we have been taking samples of the milk for the purpose of testing and finding out the fat contents from each individual cow. I have made up the figures for 1903, from the first of January to the 31st of December. The best cow produced 10,214 pounds of milk—over a thousand gallons of milk. The test averaged 3.5 per cent. of fat. Adding one-sixth to the fat, because it is impossible to make up each individual cow's milk into butter, her milk was equal to 418 pounds of butter. In our dairy department and Dairy School we buy some five or six thousand pounds of milk daily throughout the year. For the months of December, January, February, and March, we pay the farmers 25 cents per pound of fat, and give them the skim-milk back, and if they do not take it back, we allow them ten cents per hundred pounds extra for the skim-milk. For the rest of the year we pay 20 cents per pound for the fat, and the skim-milk back, and on that basis the cow's milk was worth $76.18. We also sell a considerable amount of milk at four cents per quart going to the College, and that cow's milk was worth at that price $163.42—that is the best cow in the herd.

A Member: What breed was she?

Prof. Dean: Grade Holtsein. Her dam was a short-horned grade cow. The poorest cow produces 3,775 pounds of milk. The reason I mentioned this is to show

you what a difference there may be between the individual animals in the same herd, kept on the same food and the same care. The poorest cow produces 3,775 pounds of milk. The value of the fat was $36.87, the value of the milk was $60.40. We had six cows in the herd. They gave over 8,000 pounds per cow, and eight cows that gave under 6,000 pounds per cow. Our average for the herd of twenty cows was 6,711 pounds of milk and 276 pounds of butter, and the average per cent. of fat was 3.6, and the value $51.02, and the value of the milk at four cents per quart, $107.38.

Now, I am disappointed in that record for this year. I expected that our herd would have averaged 8,0000 pounds of milk per cow, whereas you see it was only slightly over 7,000 pounds. We hope to get our herd up to 10,000 pounds of milk, or 400 pounds of butter, and we can only do that by weeding out the poor cows. Every man should ask himself the question, Shall these unprofitable cows live? So far as we are concerned, we have answered the question by saying they shall not live, and that these cows shall be turned off to the butcher if they do not come up to the standard of the herd. In a herd of thirty cows we find we have to weed out from five to ten every year, and even then we find it difficult to keep our herd up to the standard.

A Member: What is the size of your herd?

Prof. Dean: Thirty cows.

A Member: Are they all grade Holstein?

Prof. Dean: No; we have three different breeds, and the rest of the cows are all grade cows. If you wish to bring your herd up to a high standard, your cows must be well cared for and well fed. I think the time has come in this country when we must give more attention to proper stabling and better care for our cows. As Mr. Glendinning discussed that point fully yesterday, I shall not touch upon it at the present time.

If a man is going to bring his herd to a profitable line of production, he must have good cows, and feed them well. If we want to get best results from our cows, we must give them plenty of food suitable for production of milk. Assuming that you have good cows, well fed, kept in clean condition, and that you get your milk in a cleanly manner and keep it cool, and have the milk cooled to a temperature of 60 or 65 degrees immediately when drawn from the cow, there will be no difficulty whatever in producing a fine quality of butter and cheese in Canada. (Applause.)

Is there any reason why we cannot improve the quality of our cheese 50 per cent., or make a finer quality of butter than we are doing to-day? Why cannot we make as good butter as they are making in Denmark? We have just as good cows, and just as good fodder, just as good land, and just as good factories, and just as good men. Why is it that we cannot produce the very finest quality of goods? It is largely because the product is handled at too high a temperature. By keeping your milk at too high a temperature you are making the conditions favorable for the growth of these undesirable bacteria. Some man said this morning that we are telling the farmers now that it is unwise to aerate the milk, and they were told a few years ago that that was the best thing to do. We have learned some things since we advised aerating milk. If there are no bad flavors and no bad odors around, it is a good thing to aerate. A few years ago, when I talked along this line that aerating of milk was a bad thing, I was almost hissed from the platform. W have gone half a mile away from any buildings and aerated the milk out in the field, and the results were no better than where we aerated around the barn. And now I am satisfied that the aerating of milk is practically no good. The only good which comes from aerating is the cooling, and you can only cool it to the temperature of the atmosphere, and hence in hot weather the aerating of milk will not cool it sufficiently.

We have made a galvanized tank about two and a half feet deep, wide enough and long enough to hold all the cans we require, and as soon as the milk is got from the cow, we take these cans of milk and set them in that tank. In hot weather, we put in ice. If we find that we need more ice, we put it in. The Saturday night's and morning's

milk must be cooled to 50 or 55 degrees. Of course, the stirring means considerable labor. We have an arrangement that we wind up with a crank, and there is a paddle that goes in and out, and that keeps it stirred and keeps the cream from rising. Someone in the audience said this morning that he put his can in the well, and the milk was thick. I do not wonder at that, because, when he put it in the well, the outside of the milk cooled, but the centre did not cool. The advantage of stirring is, that you expose the milk in all parts to the cooling. You do not cool rapidly enough unless you stir. We have a dipper with a solid handle, and we stir it with that, and there is no danger of churning the milk while stirring. The whole question resolves itself into this: Get the best cow you can, feed her properly, cool the milk to 65 degrees, and keep everything clean. Cool it Saturday night to 50 or 55 degrees, and if you will do that I will guarantee we will hear very little complaint about bad flavors, which seem to be so prevalent at the present time. (Applause.)

A Member: What was the poorest cow in the herd?

Prof. Dean: A pure bred Jersey. Mind what I said: it is not a question of breed at all; it is a question of the individual animal.

A Member: I would like to know the age of the poorest and the best cows?

Prof. Dean: The poorest cow is about seven years old, and the other one probably about six years old; there is not very much difference in their age.

A Member: Did that poorest cow take on flesh?

Prof. Dean: Yes; she fattened rapidly after she was done milking.

Mr. Derbyshire: That poorest cow is a steer. (Laughter.)

Prof. Dean: She is, as far as the production of milk is concerned.

A Member: Does the poorest cow consume as much food?

Prof. Dean: There was practically no difference in the amount of concentrated food, but some difference in the amount of cheaper food. However, both cows will fatten quite readily.

A Member: At the time of milking?

Prof. Dean: Well, I think there would be very little difference in the amount of flesh these two cows carried.

A Member: How did they compare last year with this?

Prof. Dean: I am not sure that the poorest cow was there all of 1902. The cow that gave the best record was the cow we raised ourselves.

A Member: How did that record compare with 1903?

Prof. Dean: 1903 was slightly better for the whole herd.

A Member: Were they both milking at the same time?

Prof. Dean: No; the cow that milked best milked about 100 days in the year, and that is where I think the poor cow was badly trained—she had not been trained properly when she was young.

A Member: They tell us that in the Brockville district they are making the boxes a great deal different from the boxes made here, and they get a good deal more money in the old country on that account?

The President: We get the best boxes we can, and we will put up the goods in the best possible way, and we sell them just as dear as we possibly can, and then we feel that we are not getting enough.

A Member: Did you ever use a birch box?

Prof. Dean: I have seen a birch box that was a very good box, but elm has proved to be the best as far as we know yet. There is another material we can use for making boxes.

A Member: Bring it on, for elm is getting scarce.

Prof. Dean: We can get lots of elm yet.

Prof. Ruddick: A great deal depends on the kind of birch; some birch splits very readily.

A Member: What about a tin box?

Prof. Ruddick: It costs too much. I saw a box at a convention in Ogdensburg which appears to be the nearest thing for a substitute for wooden boxes I have yet seen. It was made of thick paper board, and it seems to me it might fill the bill if improved. The head as well as the band was made of thick, heavy paper, and cemented together.

A Member: What would be the price of that box?

Prof. Ruddick: They were selling them for twelve cents.

A Member: Would that kind of box hold the moisture?

Prof. Ruddick: This paper was made with a certain amount of sizing, and they claim it will not absorb any moisture. That is one of the difficulties with a paper box. I had some tin boxes made for transporting the cheese from the factory to the curing rooms. They cost $1.35 each. They were made from heavy tin, with a loose cover. Tin would be very expensive.

Prof. Dean: To my mind the timber out of which a cheese box is made must come in a very short time from away in the northern part of the country, where we can get a better quality of timber than we have in Ontario, and that means that the stuff must be shipped into old Ontario in the knocked-down form. This last year we put in the dairy department a bender—that is, a machine for making cheese boxes—and I believe it is practicable for the cheesemaker to make his own boxes in the winter time. He could have his material shipped in the fall, and in that way he can make his boxes as good as he likes. It does not require any special skill. We had an experienced man show our man how to do it in an hour. The bender costs $25. We propose giving that instruction to the Dairy School pupils this winter. I know a cheesemaker who made his boxes this year, and he found it very satisfactory. (Applause.)

A Member: While out in Manitoba I saw a bender in a factory, and I made several boxes myself, and I think I made them just as good as any cheese boxes that we have.

A Member: I would like to ask Prof. Dean a question or two. He spoke of one cow milking a longer time than the other. Do you not think you could teach the heifer to milk a longer period by milking her the first season for a longer time? I have one cow that gives near 8,000 pounds of milk in seven months and a half, but she has been in the habit of being dried up at that time, and I am trying to milk her for an extra month, and I find it very difficult to do so. Do you not think the fault is in the education of the heifer the first year or two she is milked?

Prof. Dean: I would say yes, and that is the reason I think there is such a difference in the two cows I referred to.

A Member: I would like to ask what these boxes cost before putting together?

Prof. Dean: Ours cost nine cents a box at Tavistock, and the freight was $2.50 on 500 boxes; that included everything, nine cents a box complete in the knocked-down form.

The President: The belts will cost you from $50 to $52 a thousand, and the headings will cost you about $40.

A Member: How thick was the belt?

The President: They are making them just as thin as they can, but they ought to be five to the inch.

Prof. Dean: I do not see any reason why, when you are placing the order for 1,000 to 3,000 boxes, you cannot get them half an inch thick if you want them. If a man orders his own stuff, let him order it the proper thickness.

A Member: Could you get a carload of stuff shipped any place you desired?

Prof. Dean: I think I could if I ordered them in time. We tried a long time before we could get any cheese boxes, but by placing your orders early in the season I think you could get a carload shipped to any factory in this country.

A Member: At the present time you can hardly get the cheese boxes.

The President: I will sell you fifty cars at $50, and ship to-day.

A Member: How many boxes will that car make?

Prof. Dean : About 10,000 in a car.

A Member : What about headings ?

The President : You will have to ship the headings from a different point. The heading should be seasoned basswood, or else you will spoil the whole thing.

A Member : In shipping the cheese from the factory to the station, I have adopted the plan of sending them in spring waggons, and it makes quite a saving in the boxes.

A Member : Would you advise us to pasteurize our starters ?

Mr. Publow : Yes; I think I would. The best way is to care of the milk, so that you will not require to use one. A starter is used to hasten the ripening of the milk or improve the flavor. We make that starter in this way : We select the best milk we can get, and heat it up 180 degrees, at least 160 degrees, and keep it there from twenty minutes to an hour ; then we add a pure culture that we have got in the commercial form from Guelph, or Kingston, or Mr. Derbyshire, or Douglas, and we follow the directions that come with them. We usually take ten pounds of milk after it has been pasteurized. Then it is cooled to 76 degrees just as quickly as we can cool it. Then we put the contents of the bottle into this, and maintain the temperature at 76 degrees, until the milk thickens, which will be in from twenty to twenty-four hours, and then it is fit for use. Then the next day we take as much milk as we think we require for the starter. It is not safe to use more than one per cent. We pasteurize that milk in the same way, and cool it down to 76 degrees, and put in about four per cent. of this starter.

I would advise you not to use a starter if you can get along without it, and if you do use it, use it intelligently. A starter is a bad thing to use if you do not use it intelligently.

A Member : How long could you carry a starter ?

Mr. Publow : I know one man who carried a starter for two summers, while others will have to do away with them in a short time. We usually recommend not to carry them longer than a month. Carry them so long as they are serving you well ; get a good one, and be careful with it.

A Member : What kind of a vat do you use for pasteurizing ?

Mr. Publow : We use the ordinary shotgun can, that is well made and well soldered holding about 25 to 56 pounds, with a cover on and a stirring rod down the centre; we set them in a barrel of hot water and let them scald.

A Member : Is it necessary to pasteurize the body of milk ?

Mr. Publow : It is not ; but it is better.

A Member: Would it be a detriment to insert a steam pipe instead of using water ?

A Member : If the water was good. I prefer applying it around the milk. I think it is the best way. If you use water in the starter, pasteurize the water as well.

A Member : Do you think it necessary to skim the top off your starter ?

Mr. Publow : Yes ; I think it is a good thing to take off the first inch or so from the top.

A Member : The Allans say our boxes are all smashed when they come off the steamships in the old country ?

The President : There are some.

A Member : How high would you cook the curds ?

Mr. Publow : I have cooked them as high as 110 degrees. I would rather cut thin than cook too high. If you have to cook much above 102 degrees then cool back before you draw the whey off by putting some cold water on top.

A Member : One hundred and ten degrees would be the limit ?

Mr Publow : That is as high as I have ever gone. I prefer cutting the curds fine.

A Member : Do you find the wire knife easier than the blades ?

Mr. Publow: Yes; you can use a fine knife and have a more uniform cut. They cost just about the same as an ordinary knife. They can be procured from practically any dealer. They are manufactured in the States.

A Member: I have found a great deal of trouble with the caps. A great many of the bandages were shipped in a bad condition, [illegible] black seam.

Mr. Publow: [illegible]

A Member: Do you prefer the starched to the unstarched cap?

Mr. Publow: Yes; you want some, but not too much; they are better [illegible] a little starch in.

AN IMMENSE GATHERING.

[illegible] oors, and several hundred persons were unable to find admission. A musical programme was provided by the ladies and gentlemen who so satisfactorily filled the bill on the [illegible] regarded by convention goers as one of the most successful ever held in the Province.

The President expressed himself as delighted with the large attendance, and once more congratulated the citizens of Belleville upon their public spirit and hospitality.

DAIRY INSTRUCTION AT THE AGRICULTURAL COLLEGE.

By Prof. H. H. Dean, O.A.C., Guelph.

After a few complimentary remarks regarding the size and quality of the [illegible], and some humorous references to the high opinion everybody seemed to have of Belleville, the speaker proceeded to say: The subject which has been assigned to me is not one of my choosing. I was somewhat surprised when I got a copy of the programme and saw the topic which was set before my name. I presume that the Dairymen's Association wanted to know what we have been doing at the College and at the Dairy School in Guelph, and with your permission I will take up that subject and try to give you a brief outline of the work we are doing. My work is such that it gives me pleasure to tell you about it. I sometimes think there is nothing new to be learned at these meetings, that there is no use coming to them any more; but every time I go home I feel more like coming back again, and I hope every one will take that interest in the work that will give us a desire to know more about it.

I think the Dairy Schools have done a great work in connection with dairying in this Province. The Dairy School in connection with the College was established in 1893, and since that time two other schools have been established, one in the Eastern Section here at the City of Kingston, and one in our Western Section at the Town of Strathroy, and these schools have by their teaching, their practice, and example done a great deal towards producing uniform methods in the manufacturing of cheese, and they have brought out ideas that were of benefit to the patrons and to the makers and to all concerned.

Before I speak of Dairy Schools proper, I should like to say a word about the Agricultural College. Some of you have been there. I regret we do not see as many farmers and people from Eastern Ontario at the College as we should like to. No class of people are more welcome there than the farmers and dairymen of the Province of Ontario, and for fear there may be some here who have not a correct idta as to what we do, I should like to say a word as to the college work generally.

We have a college and an experimental farm combined. The farm consists of 550 acres, most of which is under cultivation. On the College grounds we have twelve large buildings, devoted to dormitories, and the various sciences connected with

the institution. These buildings are for the purpose of teaching students who come to us the sciences which underlie agriculture. That word science means something that we know. The trouble in the past with agriculture and dairying has been that we have guessed at too much. Science aims to tell us what is the truth concerning the growth of certain plants; concerning the growth of certain animals; the truth relating to various things, which are carried out upon the farms of Ontario; and therefore in connection with the scientific department we are trying to get at the truth for the benefit of the students who come to us, and for the benefit of the farmers of Ontario generally. Recently there has been added another branch which is for the benefit of the farmer's wife and daughters. Through the munificence of Sir William Macdonald there has been erected in connection with the College two large buildings, capable of accommodating 100 students in residence, and these buildings are equipped with everything so as to give them a thorough training in what is called "Domestic Science," and I believe it is one of the best moves that have ever been made in connection with the College. In answer to the question as to what is the best way to keep the boys on the farm, some one has said, "Keep the girls there and the boys will stay." In the past our education has been almost entirely for the farmer and the farmer's son. The farmer's wife and the farmer's daughter have been neglected in our system of education of agriculture, but that neglect is going to be rectified. We have at present about twenty-five lady students taking a course in domestic science, and as the farmer's wife and daughters begin to realize the benefit of an agricultural education, I think they will patronize it to a larger extent than the boys do at present.

We have at the present time about 250 students who are taking to the regular agricultural work, and in addition to that we have something between 200 and 300 who are taking the special short course work in agriculture, live stock, dairying, poultry, and so on; so that we have during the winter time between 600 and 700 students attending the college.

A great many people ask the question, Does the College pay? Of course it pays Not directly in dollars and cents, but it pays through the fact that it gives an education to the farmer's sons and the farmer's daughters of this country that will bring back to them in pleasure and happiness a thousand fold. What is money? Do not a great many men and women who live on the farms of Ontario to-day, live a miserable existence because they do not know how to enjoy life? They have plenty of money, but the money does not give them pleasure. Money alone does not make life worth living. It is the happiness and the joy and comfort which we get out of our lives which make life worth living. I think it was Professor Robertson who said that in the past we have been laying emphasis upon the three R's, Reading, Writing and Arithmetic, and he says that should be changed, and the emphasis should be placed on the three H's, the Hands, the Head and the Heart. I think a marked revolution is about to take place in connection with our agricultural education. If Dr. Mills were here he would give you more details of the general objects of the College and Farm than I am able to do.

I come now more directly to that part of the college work in which I am specially interested, the dairy department, and the dairy schools. In the dairy we have a full equipment for manufacturing butter and cheese, on both the private or farm dairy plan and the factory plan. We have in our farm dairy department nine different makes of hand separators. There is not a week goes by but that we are asked the question, what is the best separator. We cannot answer that, but we say to the students who come to us: Go into the farm dairy and work with every one of those machines, and make up your mind as to which one you think is best, and that is the one that will be the best separator for you. In every class that goes through our dairy school we will have some students who will think some one machine in the dairy is the best one. One student will prefer one and another another; and that

shows you how difficult it is for any one person to recommend a machine which will suit everybody. As Governor Hoard has said, you might as well ask a man to pick out a wife that will suit everybody. There is no "best machine"; they all have their strong points, and they all have their weak points. They are like men in that respect.

Some one has said great men have great weaknesses, and that is true. Every separator has some weakness; no one machine has all the strong points; and I mention that to try and illustrate what we are trying to do in connection with one branch of the dairy school, and that it is a question which every man must solve for himself. In connection with our cheese department we have a full equipment for teaching the manufacture of Cheddar cheese, and we expect during this coming winter and spring to be able to give such instruction in the manufacture of Cheshire cheese. A lady who is a graduate of an English dairy school, and who claims to understand the manufacture of Cheshire cheese, is coming to our school in the month of February to give our students instruction in the manufacture of this cheese. I heard Prof. Robertson say at one time that eventually there would be only the two kinds of cheese made in Canada—Cheddar and Cheshire. I do not know enough about the Cheshire method to know whether that is true or not; but we propose to give our students instruction in the manufacture of Cheshire cheese, and we have engaged this lady specially for that purpose. Near Guelph there is a family, who are noted all over Canada for making the famous Stilton cheese, and we expect one of them at the College to give special instruction in the manufacture of Stilton cheese.

We have three different breeds of cattle in our stables, and when lecturing, we bring the cattle into the class-room. Anyone who has ever tried it will know how difficult it is to try to point out the characteristics of any particular animal without having the animal there; and we found it a great advantage to have the animal right before the student so that we could explain all about it, and there is no method of teaching equal to that. A man might read books or hear addresses about the characteristics of the different breeds, and yet know nothing or very little about them, until he comes in contact with the animal itself. We have extensive stables, and we keep different breeds of hogs and sheep, and no line of teaching has been so profitable as that particular line of work.

Our first and second year students in the College take practical work and lectures in dairying. The first-year students take a course of leeturcs on farm dairying work, and they spend some time in practical work, so that they will be able to put in practice what they have heard in the class-room; so you see that the head and the hand are trained together, and that is how we hope to turn out trained dairymen, by first teaching the mind, and then training the hand to do the work.

In the second year they take up a course of lectures on co-operative dairy work, and take up the practical work in the factory plan. It is not possible to give these students enough practical work to turn out finished workmen, if they have had no previous experience. It is not possible to do that with a large number of students we have, but we can go over enough practical work so that they will have a good working knowledge of the subject about which they have received instruction. We have a certain number of students who take special work in dairying, and these take up the advanced work, and go out as graduates in dairying from our College; and they are able to take responsible situations. I am glad to say that all the men who graduate from our College in dairying are being sought after. During these past two or three months I have had letters from three different American institutions wanting students from our dairy department to go and take charge of their dairy work. At the present time one of our graduates has been offered a good position in one of the leading American colleges. We would like to keep these men in our own country, but so long as the American colleges will pay $500 to a $1,000 a year more than these men can earn in Canada, we cannot blame them if they go to the United States, and I think the time

coming when we will have to give these men greater inducements to remain in Canada. I believe the agricultural industry and the dairying industry of Canada is large enough and wealthy enough to employ the best men, and to pay them as high a salary as they can receive in any American institution. (Applause.) We do not want to see the best men leaving this country and going to the United States, and I do not think we should allow these men to go, but should make it sufficiently profitable of them to remain in Canada.

The competition in dairying is becoming keener every year. At the present time we have at the Agricultural College twenty students from the Argentine Republic: they have been sent out by the Argentine Government, and they are allowed $80 a month for expenses while at the College. They have sent some of the brighest and best boys they have, and when they come there some of them cannot speak a word of English. They talk Spanish at home. These boys go to the schools in town, and wherever they can to pick up the English language. Many of them stand high in their classes, and when they go back to the Argentine Republic, you will find that that country is going to be a competitor with us in the dairy product. They have increased their dairy products from 50 to 100 per cent. in the last three to five years, and they are taking some of the best men we have back there and putting them in responsible positions in order to develop agriculture and dairying in that country; and so it is everywhere. Men who are being trained in the dairy industry in this country are being asked for by almost every country under the sun. I think the time has come when there should be more uniformity in the methods of teaching and in the length of the course, and the standard required before certificates and diplomas are granted in connection with the dairy classes.

I am much pleased with the men in charge of the other two dairy schools—Mr. Barr in the West, and Mr. Mitchell in the East. They are both men who have the confidence and respect of the dairymen in this country, and I am glad to have them associated with me in connection with the dairy school. I trust the time is not very far distant when we shall be able to map out a course in our Dairy Schools which will be even better than we have at the present time.

The Agricultural College is peculiar in this respect, that we combine a teaching institution with an experimental station. A great many people think the professors at the College have a soft time, and that it is merely a picnic there all the time; but I tell you we are kept tied very closely, especially when we try to combine experimental work with our teaching. I propose to run over some of the work we have been doing during the past year.

First, in connection with the best way to provide milk for household purposes, especially for towns and cities. We have taken samples of milk from our own herd, and from that delivered by patrons, and mixed it freely, and marked one sample normal, that was the milk that was either obtained from our herd or delivered by some patron. We have taken another lot, and heated that to a temperature of 140 degrees and marked that, and set them side by side, and we have run some of that same milk through a separator to do what is known as clarifying the milk, and set that to one side, and heated some more of the same milk to a temperature of 160 degrees and marked that, and we have heated some to a temperature of 180 or 185 degrees and marked that. Some of it we have also filtered through cotton batten filters. We have had the best results in heating to a temperature of 160 degrees and then cooling to 40 or 50 degrees; and I believe the time is coming when there will be a marked improvement in the quality of the milk delivered in our towns and cities. I find that in the city of Guelph you can sell any kind of milk. This past summer a woman came up to the dairy department with a sample of milk which was left at her house, and she said she had been suspicious for some time that there was something wrong with the milk. I took that sample of milk and tested it, and the lactometer reading was about 16 per cent. of fat. Now, can you blame that woman for finding fault with

milk that had only 1.6 per cent. of fat, that had from 40 to 50 per cent. of water? I told her to tell the milkman that if he wanted to put water in the milk, to put good water in, because it was bad water. In a town of this kind the people have no way of [illegible] improved quality of milk.

The Mayor: We have a Babcock tester, and a man who knows how to use it.

[illegible] Dean: In a great many towns the man appointed to do the work knows nothing about Babcock tester or lactometer. He will find 6 or 7 per cent. of fat [illegible] and at another time [illegible] per cent.

It is a well known fact that there is nothing that will carry disease germs, such as typhoid fever and kindred diseases, like milk, and unless this matter receives supervision, and unless the bottle and cans which are used for the delivery of milk are properly [illegible]

[illegible] every farmer who supplies milk to the company the full price for his milk when they [illegible] sickness in the family of a contagious nature, and compel them to keep the milk [illegible] ng as sickness continues in that family; and not only do they do that, but if [illegible] woman employed by the company has any contagious disease in their family, they pay them their wages just the same as if they were working, and compel them [illegible] cheap on that plan and guarantee the quality as they can here in most of our [illegible] re the conditions are much more favorable for the production of cheap milk. [illegible] milk trade of our towns and cities should receive more attention than it [illegible] from three to five days without turning sour, and then develop no bad flavors: [illegible] and mechanical cold storage for the preservation of dairy products. We have [illegible] a result of our experiment this last year that both butter and cheese kept [illegible] p rature, but the expense of operating the mechanical cold storage would more than [illegible] moisture in the air. I believe that when these machines become cheap so that [illegible] cheese factory and creamery can afford to have them, that they will be the right thi g to have.

[illegible] tage to have an extra quantity of rennet. We discovered during the past year that after the first month or six weeks, cheese ripened at practically the same rate whether at 28 degrees or 60 degrees. Not only in the practical test, but by chemical analysis. The soluble nitrogenous matter was determined. It was found in the chemical laboratory that the ripening proceeded at the same rate whether the cheese were in [illegible] place or in a comparatively warm place. I believe rennet is the most important [illegible] gent in the ripening of cheese, and for cheese which are put directly in the cold storage, I am inclined to think it would be an advantage to use a larger amount of rennet. I would not like to be very positive on that point until I have gathered more information.

We found that the cheese ripened in an ice cold storage or mechanical cold storage, that were kept there one, two, or three months, and then moved into an ordinary room did not deteriorate rapidly in quality. It has been said that you have cheese ripened in cold storage, and then put them in an ordinary temperature, these cheese will ripen quickly. We did not find that so. The longer the cheese were in cold storage, the better was the quality of the cheese, after being removed to an ordinary temperature.

We also found that cheese put into the boxes directly from presses were better in quality than were those put on the shelves, and from the work we have done in that connection I would say that there is no risk whatever in putting cheese directly from the hoops in the boxes and putting them into the cold storage, more especially into mechanical cold storage. The condition there seemed to be favorable for making a fine quality of cheese in boxes. In this experiment the cheese were put into the boxes, and the cheese were not turned in the boxes, nor were the boxes turned.

We also found that cooking the curd at a temperature of from 102 to 110 degrees reduced the acidity in the curds in every process of cheesemaking. In the case of fast-working curds, work from a temperature of 103 to 110 degrees certainly tended to check the acid, and gives an improved quality of cheese, but it reduces the quantity you will be able to make.

In all this work our aim has been to provide accurate information for the dairy industry and for the dairymen of Canada. We want to know things, and the only way to know things is to have a practical experience with them. In all our experimental work we have tried to get information which would be reliable, and we cannot do that work alone. We need co-operation ; and I trust the time is not very far distant when we will be able in this experimental work to get the co-operation of several institutions, so that we can get information not only from one point but from various points, so that we shall be sure of our ground as we go along. It is not wise to draw a hard and fast conclusion from one years' experiments. They must be repeated, in order that we may be sure of our ground. Chemists and bacteriologists can do a great deal for the dairymen of this country. We ought to have half a dozen chemists, and a half a dozen bacteriologists working on the various problems that come up. At the present time we have only got one or two chemists, and one or two bacteriologists, and they devote only part of their time to dairy work. I go over to the American Dairymens' Association or to the Agricultural Colleges, I find in every one of these institutions they have one to three men devoting nearly all their energies to the study of these problems, and unless we look out we will find these men going ahead of us. Every Canadian, no matter whether he lives in the town of Belleville, or on a farm near Belleville, or in any other place, ought to take a pride in this dairy industry, and do everything he can to make it one of the best and most profitable industries in connection with agriculture in Canada. (Applause.)

LOOKING FORWARD.

By C. C. James, Deputy Minister of Agriculture, Toronto.

We are told that a city man, ignorant of the mechanism of that wonderful animal the cow, was one day watching another in the very interesting operation of milking, and he put this question : "How do you stop when you get enough ?" (Laughter.) The Ontario dairymen are not in that predicament, they never know when they get enough. They are more anxious to keep the flow of milk going than to stop it. They are in extra good humor at the present time. The year 1903, through which we have just passed, has been, all things considered, the most prosperous year in the dairy history of Canada. A year ago when we looked back over 1902 we were able to congratulate ourselves that we had had a successful year ; but 1903 has far surpassed 1902. And if we look around and ask ourselves for an explanation as to why the people of the Province of Ontario are at the present time in good humor—why, in other words, the times are so good—we have simply to refer to the fact that our dairy interests have reached a higher mark than ever before. We could almost apply to the Province of Ontario during the past year the old expression, that, it was a land flowing with milk and honey.

1902 gave us a cheese output of $2,500,000 more than 1901, and I have no doubt that when we have the figues all finally compiled, that the year 1903 will be as far ahead of 1902; and when you remember that this extra $2,500,000 of this extra $5,000,000 has gone back into the pockets of practically the same class of people, you will understand why it is we have more money in circulation, and why more grocery bills have been paid, and why the men engaged in our towns and cities have felt in connection with our great commercial enterprises a better and more prosperous movement than they have known for many years past. The agriculture of Ontario during the past fifteen years has passed through a most remarkable change. You did not notice it at the time, but if you stop for a moment now and think of what has been taking place, you will, I have no doubt, be astonished at the revolution that has been effected in connection with our agriculture.

Fifteen years ago the watchword of success in agriculture around the Bay of Quinte was "Barley." Those of you who have lived here for that period of time know how absolutely dependent were the farmers of this section upon that one crop, and you know how there was raised against it a tariff wall upon the other side of the lake, and how the industry was killed off in a very short time, and you and others practically held up your hands, and said the agriculture of this section seems on the verge of ruin. The barley has gone, and thereby the agriculture of this section has been saved. What appeared at that time to be a hardship has, after all, been the most important element industry, which is worth far more than the barley industry was.

In connection with the development of the dairy industry, other lines of work have shown most marked changes and development, and one of the surest signs of the future prosperity of this Province depends upon the fact that we have developed our agriculture along a number of lines.

Ontario is in quite a different position from some of the Western States or some of our Northwestern Territories or Provinces. You go to some western city or to the Northwest and you find there the prosperity of the country depends entirely upon some one crop. If you want to know the condition of affairs in Manitoba or the Northwest or Kansas or North Dakota or some of those sections, all you have to do is to ask what is the wheat output and what is the price? Here in Ontario, however, partly through circumstances over which we have no control, and partly through the diversity of our natural conditions, and for various other reasons, we have developed various lines of agriculture. Have you ever thought how varied the agriculture of this Province is?

Commence on the extreme east and go up the St. Lawrence until you reach the county of Hastings and the eastern portion of Northumberland; the one great industry is that of cheesemaking, with butter-making as an ally. The eastern portion of our Province is dependent almost entirely upon the dairy. The climate, the soil and the class of stock found therein are peculiarly adapted for the development of the dairy industry.

As you go west, however, a change takes place, and you can draw the line on the map where dairying ceases and mixed agriculture begins. As you go north through a part of York, Simcoe, Grey and Bruce, and Huron, you come into a section where dairying plays but a small part, but where the live stock industry is the great consideration in connection with agricultural work. Then you go into the counties of Essex and Kent, and there are only two things that stand out prominently—the growing of corn and the production of pork and bacon. Corn and swine are the two elements out of which the farmers of these two counties make their money in the main; although fruit growing produces wealth to a certain extent. Then, going back along the north shore of Lake Erie, we have mixed agriculture and fruit growing, until we have reached the head of the lake, when we have fruit growing and little else.

Now we are left in the western portion of our Province, half a dozen counties—Brant, Oxford, Waterloo, Wellington, Perth, and Middlesex; where there is a com-

bination of all these elements, where dairying has been developed to a very high extent; where live stock also receives a great deal of attention; where the farmers receive their returns for their cheese sold, their pork and bacon.

Bordering on the Bay of Quinte or adjacent to it, we have the counties of Hastings, part of Northumberland, Lennox and Addington, Frontenac and Prince Edward. We have not the figures available for the year 1903, so I have taken the figures of the previous year, and I find that in these five counties we have no less than 253 cheese factories, just one-quarter of the entire number of cheese factories in the Province of Ontario grouped around this old Bay of Quinte. The output of cheese in 1902 amounted to $3,731,000.

Will you allow me for just a moment to drop in here a word of comparison as to how it affects this section: to make a comparison between this group of five counties in the east and three or four counties in the west, which are noted as cheese-producing [illegible]

[illegible] you all know, Hastings county stands at the head of all the counties in Ontario for the amount and value of the cheese produced (loud applause); Oxford comes next, [illegible] be said, that the county of Leeds is very much smaller than the county of Hastings, and there is a question whether there is any section of the Province of equal size that has developed the dairying industry to so great an extent as that in the immediate vicinity of the town of Brockville. Now I hope I have set myself square with [illegible] body. (Laughter and applause.)

If we take the three largest cheese-making counties in the west, Oxford, Perth, [illegible] The five counties around the Bay of Quinte $3,731,000, that is an average of $746,000 per [illegible] so far as cheese making is concerned you do. The reason I am making the comparison [illegible] other industries, away beyond what you have done here, and while they are taking in [illegible] will [illegible] the cheese industry, you have not been holding your own or making that progress in [illegible] will set yourself to it and you will thereby materially improve your financial condition.

These three counties in the west in the same year that they produced $2,261,000 worth of cheese, produced and sold pork and bacon, or the material out of which pork [illegible] by you as essentially dairying counties, and yet the bacon industry has been developed to such an extent in these three counties that they receive for every dollar worth of their cheese $1.09 for their product of pork and bacon; and for every dollar that you receive in the form of cheese you get only 40 cents for products in the shape of pork and bacon. There is no other industry in the Province that can be developed along with the dairy industry so well and economically as this pork and bacon industry, and if the people of this section wish to get in line with the agriculture that is going on so extensively all through the western part of the Province, they ought to take to heart these figures I have mentioned.

You are producing only $1,480,000 worth of pork and bacon, whereas you should be producing in proportion to what the others are producing, over $3,000,000 worth. What would be the effect upon these five counties if in addition to the average $4,000,-

000 you are receiving for your cheese, you were also receiving $4,000,000 for your pork and bacon? Until a few years ago pork and bacon produced in the Province amounted to $6,000,000 a year, and now it has reached the same proportion as our fat cattle trade in 1902. The fat cattle of the Province were estimated to be worth $23,000,000, and pork and bacon had come within $3,000,000 of it. I give you these figures to show you what wonderful strides have been made in the west, and to suggest to you that you have been overlooking that feature of agriculture.

One-quarter of the cheese in the Province is made in these five counties hereabouts, and only 7 per cent. of the pork and bacon; and I think that is something that ought to receive your very careful consideration, and I submit that to the people of the city of Belleville. Is not something there that the city of Belleville ought to look into? This city has shown a great deal of interest along lines of manufacturing. Here is something that perhaps you might find a great deal more profitable than some other industry that might more immediately attract your attention. What are you doing to [illegible] prosperity of this Province?

[illegible] towns and cities. Money that is received for the cheese which is made in the townships of the county of Hastings finds its way in circulation to the city of Belleville and the towns in this immediate vicinity, and the people of this city are as much concerned as [illegible] are as much interested in the conditions of the cheese factories, and they are as [illegible] interested in the agriculture and the equipment of the men who are conducting these factories; and they are interested in the whole operation from the beginning of the production of the milk to the final selling of the finished article in the old country. For a great many years we have been carrying on conventions and institutions for the development of this industry, and we have come back to this, that after all the great and important element in this whole business is not so n[illegible] a fine farm or not, not so much whether he is keeping Jersey or Holstein or Ayrshire cattle on his farm, but we have come back to this: that the success of the industry depends mainly upon the men who are concerned in it, the men who are making the [illegible] farmers' family in this country usually consists of five persons: the farmer, the [illegible] wife, and three children. For a great many years we have been holding Insti- [illegible] ings for the farmer, and two or three years ago we found out for the first time that the farmer had a wife. We realized that we had overlooked these farmer's wives, and so we began the organization of Woman's Institutes, and the proof that these were needed is to be found in the fact that they have spread so rapidly over the [illegible] of this country. The development of the woman's Institutes has been for greater [illegible] was the original organization of our farmers' Institutes. We have not yet found out our duty with regard to the three children upon the farm. We have overlooked them. We have not yet made right provision for their help and assistance and train- [illegible] in the principles of agriculture.

If we come back to Belleville ten or twelve years from now, what will we find? We will find that the great majority of the men who attended these conventions will be either old men or will have disappeared, and almost an entirely different audience will be here. The men who were at this convention fourteen years ago are not here to-day, because during that time they have to a certain extent been displaced on the farm by their sons and daughters, and we have to begin and go over the ground again. We come again and again to instruct the grown-up men and women. We forget that there are growing up at the same time young men and women who are in an educational condition, and if we do not strive to instil into them some of the principles of agriculture and dairying, we will find that when they grow up they are ignorant, to a large extent of these prime principles, and we will have to begin from the foundation. We have

been working this agricultural movement entirely from the wrong end. The revolution had to begin at the top and work down; but it seems to me it is about time the people of this country wakened up to the realization that we have, during all these years, been over-looking the most important element in agricultural work. We are not making the best use of our energies, our money and our time in talking only to men of mature minds and of mature years. We should begin with the younger elements on the farm. That is what we are doing in connection with other callings. Supposing, instead of such an audience as we have here, we had with us men who from the beginning of their education had received instruction on the principles which underlie their work; would we not be able to talk to those men much more intelligently, and make our talks much more effective, and would not the mind be in a much better condition to receive the instruction? The time must soon come when the farmers of this country will rise up and recognize that we are going at this work wrong end to; that we have attended to the wrong class of citizens, and that we have been neglecting the most important element, and they will say this thing has got to be reversed. As soon as the farmers of this community say so, they will have it done.

We find our educational system has been changed continually. New features are being introduced. We are now teaching Domestic Science, and it goes like wild-fire, because the people are ready for it. Somebody comes along and says "Manual Training is a first-class thing," and it goes into all our schools; and somebody comes along and says, "Why cannot we have nature study in our schools?" Why of course nature study is what we want to know about, and it will be all right, especially in our rural schools, if nature study be made to apply directly to agricultural work. The agriculture of this country will never receive a permanent forward movement until there is a revolution along these lines. It seems to me the people ought to waken up and begin this education at the proper stage. They should see to it that our young people receive at least a bent in the right direction, so that the whole industry may be moved along rationally, and with the greatest hope of success. (Applause.)

THE TRANSPORTATION OF DAIRY PRODUCTS.

By J. A. Ruddick, Chief of Dairy Division, Ottawa.

I feel myself somewhat in an awkward position, because I represent in some sense the Minister of Agriculture for the Dominion, who is not able to be with us on this occasion, and I also represent, in another sense, the Commissioner of Agriculture and Dairying, your old friend Prof. Robertson, who is not able to be with us. Since the month of May last, his health has been so bad that he has been obliged to live abroad, and I am glad to be able to say to his friends, and they are numerous, that he is now on his way back to Canada, and, we understand, has quite recovered his usual health.

If either the Hon. Mr. Fisher or Prof. Robertson were here to-night, they might tell you about the work which we are doing at Ottawa in connection with the dairying industry of Canada. You know that this branch of the Department of Agriculture is now organized into divisions, with a chief officer in charge of each division who has had special training and experience along the line of work assigned to him. I want to refer briefly to one division, and that is the cold storage division, which has done so much to assist the dairymen of Canada to place their products on the market in Great Britain in the best possible condition. Five years ago it was decided that any creamery owner who would build a refrigerator according to the plans furnished by the Department of Agriculture, and maintain a proper temperature and furnish records, and use it for the period of three years, would receive a bonus of $100, and I am glad to tell you that over 400 creameries in Canada have built these refrigerators and received this bonus.

I had something to say this afternoon with regard to the cooling of cheese and the work which has been done along that line. Following up this line of work three years ago, the Department arranged with the various railway companies to put on iced cars for carrying butter to run on regular schedules from different points to Montreal. Last year the cars started at forty-eight different points, carrying butter at regular intervals, and the product was handed over at Montreal to the cold storage warehouses or steamships. Last year we had an agreement with the railway companies to arrange a total of 105 iced cars per week for the carriage of cheese from different points. These were supplied on application, and they were continued throughout the season from the first of July to the middle of September. In the case of refrigerator cars, the Department guarantees two-thirds of the minimum earnings. If the earnings on the cars exceed this guarantee, then there is no charge against the Department. There is no extra charge to the shipper for furnishing the refrigerator cars. The Department pays $5 per car for icing these cars. The object was not to subsidize the industry to this extent, but simply to get this service established. When these cars arrive at Montreal, there are inspectors there to inspect the contents and the conditions of the cars, and make reports as to how the service has been carried out, and to point out any defects to the railway company. A number of years ago, contracts were made with the steamship companies to fit up the steamers with mechanical refrigeration in order that butter and other perishsable goods could be cared for at a low temperature. These contracts have all expired, but the steamship companies continue to maintain a cold storage service, and last year we had forty-two steamers sailing out of Montreal to British ports with this service, making altogether 179 sailings of steamers with cold storage accommodation carrying butter and cheese and fruit and other perishable products. Then there was another service established for the better carriage of fruit and cheese, which do not require such extremely low temperature as butter ; and we had sailing from the port of Montreal fourteen steamers with cold air compartments in addition to the cold storage in which a temperature of 55 or 60 degrees could be maintained; thes fourteen steamers made sixty-one different sailings during last season. In order to have some check on this service, and to know what temperatures were being maintained, a recording thermometer was placed in the chamber in each ship, and kept locked up, and taken out of the ship on the other side and the record examined. We had altogether 199 of these instruments placed in various parts of the steamers. We have an official referee at Montreal, and I doubt very much whether his services had been utilized as much as they should be. He is not there as an inspector ; he is simply there as a referee. When there is any dispute as to the quality of butter and cheese raised between the buyer and the seller, the referee may be called in to decide which is right. He examined a large number of shipments of butter and cheese during the past season. In many cases the contention of the buyer has been sustained, and in some cases the contention of the seller. I have yet to learn of his decision being disputed; you have the privilege of asking him to examine your cheese and give you an independent report.

During the past year we have been trying to do some work in determining the factors that control the moisture contents in butter. Butter containing over sixteen per cent. of water is illegal, and I would like to tell you why a clause of that kind was inserted in the Act. The Board of Agriculture in Great Britain requires that butter should not contain over sixteen per cent. of water, and the merchants over there have been at considerable difficulty in order to be sure that the butter they buy does not contain more than 16 per cent. of water. I might talk for some time of the work which we are doing, but this will give you some idea of what is being done to assist the dairymen to place their goods on the British market in the best possible condition.

SOME DAIRY OBSERVATIONS.

By Mr. S. M. Barre, Winnipeg, Man.

It is something like twenty years ago since I had the pleasure of addressing a meeting of the Eastern Dairymen's Association, and I must say to your credit there is an immense difference between the audiences we had at that time and those we have the pleasure of meeting to-day. Twenty years ago we had audiences of from fifty to seventy-five persons; whereas, to-day we have them by the thousands. You have listened to excellent addresses from Prof. Dean and Prof. Ruddick. They gave you the silvery side, the gilded side of the butter question of Canada, and I am going to give you the other side of the question,—the dark side.

[illegible] am here to tell you what progress we have made in Canada in Canadian butter-making for the last twenty years, and I am going to show you we are behind in many [illegible] we have in the Dominion and Provincial schools. As Prof. Dean [illegible] the only trouble is we have not enough of such good men, and we exp[illegible]h from the teachers we have. How can you expect [illegible] and cheese questio[illegible] cause they have shrunk [illegible] greater progress in cheesemaking than we have [illegible] introduce in Canada the cream-gathering [illegible] vilege to introduce in Canada the separator plan of [illegible] which could be criticized, judged, and paid for according [illegible] Denmark for sixte[illegible]

The next question [illegible] for our butter [illegible] for two and one-half cents less than butter made in New Zealand, Australia, Argentina, and one or two other countries, so that we stand sixth in the British market.

There is no doubt that through our educational work we have succeeded in making in Canada a very fine quality of butter. Our butter, when fresh, gives good satisfaction in England, but we are told by exporters, who ought to know, that a very large proportion of our butter lacks uniformity, and it also lacks in keeping qualities. Two of the greatest defects in Canadian butter are irregularity and want of keeping qualities. I am of the opinion that we will never be able to make a very uniform quality of butter so long as we have so many small creameries in the country, and we will never be able to make a regular good keeping quality of butter unless pasteurization

is practiced in the creameries. So that when we come to sum up the situation I am afraid we [illegible] between [illegible]

We are proud of our cheese industry, and its success is due to the fact tha[illegible] of energy which might be better supplied somewh[illegible]

[illegible] creamer [illegible] ough to hurt the feelings of the owner, simply becaus[illegible] which would give better satisfaction in the English market.

[illegible] The cream-gathering plan was introduced into the United States about 1876 or 1877. The most important question with reference to the farm separator is how to improve it, because there is no doubt it is cutting great inroads into creamery work. It is spreading like wild-fire, and the question is, what are we going to do to improve that plan? Some have adopted the pasteurization of the cream as it comes to the factory, and I have tried it myself, and I am satisfied it is not the solution of the problem. In order to have first-class butter we must have sweet cream in the cream-gathering factories, as well as every other kind of factory, and I am convinced that it cannot well be done unless we have pasteurization on the farm as well as in the creamery. The country which will have the best educated dairymen and the most economical organization will lead in the end, and I think we can accomplish in Canada anything they can in any other part of the world if we will only set about it.

MEMBERS' MEDALLION BADGES.

Moved by Ed. Kidd, M.P., seconded by R. Dargavel: "Resolved, that the thanks of this Association are due to Mr. E. G. Henderson, Manager of the Canadian Salt Company, for the handsome badges for members which he has so kindly donated. We are proud of the fact that the Canadian Salt Company's Works of Windsor, Ont., are the largest in the British Empire, which is good proof that there is no salt of better quality than that which is turned out by this progressive company.'" Carried.

REPORT OF THE NOMINATING COMMITTEE.

The report of the Nominating Committee was presented, and after some discussion and proposed amendment, was adopted as originally presented. The [illegible] officers will be found on page 4.

VOTES OF THANKS.

Moved by Wm. Eager, seconded by John McTavish, and resolved, "That the heartiest thanks of this Association are due to His Worship Mayor Graham, and the local committee for the excellent arrangements made for our reception, and the very kindly manner in which we have been treated by him; to the musicians, who have contributed so much to our pleasure and entertainment; to the speakers who have given us such valuable information and instruction; to the press for the full reports of our proceedings; and to the railway companies for their liberal concession, which will enable us to return to our homes free of cost."

The motion was carried, with three cheers for Mayor Graham and the City of Belleville.

Mayor Graham fittingly replied. After a few complimentary remarks about Belleville and Brockville, he added: I am sure the gatherings you have had here during the past two days are the finest the people of Belleville have ever seen. This cheese business has built up Belleville, and built up the people in the vicinity of Belleville. The dairy interests have paid off more mortgages on the farms of Hastings and Prince Edward than all the other products of the farm put together. (Applause.) These are things I know of whereof I speak. There was a day when two-thirds of the farms of this district were mortgaged, and I believe to-day there is not five per cent. of them that have mortgages upon them, and people who want money now go to their neighbors on the farms and borrow it. If they want to build a pork factory which we hope to have in Belleville, or a binder factory, or anything of that kind, they go to the farmers, and the farmers have got the money, and they got it largely out of this dairy industry. We hope you will make your gatherings in our midst more frequent, and I can pledge you that every time you come to Belleville we will give you a hearty reception and give you the time of your life. (Applause.)

The President: I have now much pleasure in introducing to you the talented new Principal of the Kingston Dairy School, our own eastern school for educating the cheesemakers and buttermakers, so as to put ourselves in the first position. I feel proud of this institution, and of the officers who are handling the work there.

EXPORT BUTTER.

By J. W. Mitchell, B.A., Superintendent Eastern Dairy School, Kingston.

It affords me a great deal of pleasure to attend these meetings. My work has prevented me from attending the Associations in the past, and I have not been able to get well acquainted with the buttermakers and cheesemakers and the dairy community in general, as I would like to be. For this reason it is a double pleasure to me to attend this meeting, and to meet you, and I hope to become better acquainted with you in the future. I am pleased to have attended such a successful meting as we feel we have had. There has not been a poor session, and there has been a large attendance at every meeting, and every one has shown great enthusiasm.

It has fallen to my lot to open the subject of buttermaking at this convention, and I have chosen as the basis of my remarks, "Butter for Export," including the making of butter in cream-gathering and winter creameries. I hope that the subject will prove a live one; at least, it should.

The butter branch of our dairy industry is already no inconsiderable one. During 1903 we exported $6,954,618 worth of butter, as compared with $1,206,814 worth in 1893—an increase of nearly 440 per cent. during the decade. This side of dairying will, I believe, assume larger and larger proportions from year to year, for we can operate creameries successfully when and where it is either not advisable or quite impossible to operate cheese factories; and while we do not always do so, we can turn out a

product equal to that of any other country in the world. We must put forth every effort to build up the quality and reputation of Canadian butter, and place it on the same high plane that Canadian cheese now occupies. That butter equal to the finest Danish can be produced in Canada has been amply demonstrated again and again. Let me quote a small portion of a report upon butter made at the Ontario Agricultural College and shipped to England in January, 1903. This report says, amongst other things: "The quality, the flavor and the texture have been pronounced equal to Danish or any other butter imported, and it has realized about top price."

Some of the Requisites of Butter for Export.

Flavor. Of first consideration is the flavor of butter. Export butter—in fact, butter for either home consumption or export—should, first of all, be clean in flavor, and in addition it should possess an inviting and pleasant flavor and aroma. Furthermore, it should possess good keeping qualities, in order that it may retain its freshness and good flavor under right temperature and other conditions for a reasonable length of time; for the time that must necessarily elapse—say six to eight weeks—before it reaches the table of the consumer. We associate mildness of flavor and good keeping qualities with each other, and probably rightly so, because the best keeping butter, butter made from properly ripened, pasteurized cream, possesses these characteristics

Several factors have to do with determining the flavor and keeping qualities of butter. In fact, every stage, from the production and care of the milk to the packing and storing of the butter, plays a part in determining its flavor as it reaches the consumer.

Care of Milk. The milk received at the creamery is the buttermaker's raw material, and to make good butter it must be of good quality, that is, both clean-flavored and sweet. Some undesirable taints and flavors come from the food fed, and cows should receive no foods that will injure the milk. Again, when we consider that milk is composed of 86 to 88 per cent. water, we see the necessity for a pure water supply for milch cows. But the great majority of the flavors that develop in milk are due to the action of the various forms of germ life that gain access to it—desirable flavors to desirable forms, and undesirable flavors to undesirable forms of germ life. The injurious forms gain access through our ignorance, carelessness, and lack of cleanliness. Particles of dirt that fall from the animal or milker, an impure or dust-laden atmosphere, the dirt harbored in the seams and crevices of improperly constructed utensils, or on the sides of utensils improperly cleaned, or from which the tinning has largely gone—all these teem with putrefactive and other most undesirable forms of germ life. Let me here make the interjection that, without doubt, the greatest injury worked to milk through allowing cattle to wade into ponds and cesspools to drink, is that due to the mud and filth which adheres to the animals and subsequently dries and fall in fine particles into the milk at milking time, carrying with it most injurious organisms. All forms of germ life find milk a perfect food, and when the temperature is favorable—from blood heat to 70 degrees or below—they multiply very rapidly. The greatest safeguards against injury from undesirable organisms are scrupulous care and cleanliness, and cooling the milk to a low temperature—60 degrees or below; the former to prevent, as much as possible, the access of germ life, and the latter to retard the growth of these organisms which do gain access to the milk. Care and cleanliness and the proper cooling of the milk immediately after milking would work wonders towards insuring a good milk supply for our creameries and cheese factories.

Pasteurization and Ripening of Cream.

Given a clean-flavored milk, the buttermaker has, or should have, matters pretty much within control. He can, if necessary, pasteurize the milk or cream. Pasteurization is simply the process of heating the milk or cream to a comparatively high tem-

per [illegible] to destroy the germ life present, or to clean our seed-bed, as it were, for these organisms are minute forms of plant life, and the undesirable organisms are the weeds. The temperature may vary from 150 degrees to 180 degrees F., the latter being [illegible]

[illegible]

[illegible] n .45 and .5 per cent. This is done by [illegible] quent intervals while ripening, es- [illegible]

[illegible]

[illegible]

Churning. [illegible] size [illegible] kely, when worked, be close, and possess a good grain [illegible] re for cream with a Babcock test of [illegible] Churning at too high a temperature means quick churning, a [illegible] will not wash properly, and greasy butter [illegible] hand, churning at too low a temperature [illegible] and either very fine or smooth, rounded granules, and is not to be recommended.

Washing. [illegible] or more. Wash the butter a second time if the first water be milky. Gauge the temperature of the water [illegible] depending upon conditions for working.

Salting and Working. Let the butter drain reasonably well—say for 15 to 20 [illegible] intended for the British market [illegible] in the churn, and, after mixing [illegible] working. The [illegible] should be taken to have butter [illegible] There will then be a sufficient amount of moisture in the butter to dissolve the salt, and a

reasonable amount of working, say, twenty-two to twenty four turns of the Mason worker, or about thirty revolutions of a combined churn under average conditions, will insure surplus and the retention of sufficient moisture ; and all this without sacrificing the waxiness and grain so characteristic of good butter. Such butter should possess good keeping qualities.

Packing of Butter. The fifty-six pound box is the package usually used for export purposes. The box should be neat, strong, and well paraffined. They should be kept in a clean place, and rinsed with cold water before using. They should be lined with heavy parchment paper of the best quality, which should, before using, be soaked in a strong brine containing formalin for 20 to 24 hours. The butter should be firmly packed in the box and neatly finished. Use a straight-edge, and cut the butter smooth and level. Buyers justly complain of the finish of many of our packages. There should be about 57 pounds of butter in a box when packed to allow for shrinkage. Boxes should be of such a size as to hold this amount when level full. The majority of boxes are too large—many will hold well up to sixty pounds of butter. The boxes should be covered with cotton or jute sacks to keep them clean while in transit.

As the best keeping butter is a very perishable product, every creamery should be provided with a good cold storage—one that can be held well down to 32 degrees. The butter should be shipped as early as possible after it is made, and those who have to do with the transportation of the butter and the storage of it after it leaves the creamery, should provide every facility for handling it. The sooner our butter reaches the consumer after it is made the better for this branch of our dairy industry.

Winter Creameries.

Just a few words upon winter butter-making. Winter creameries should be much more in vogue with us than they are. We should make butter instead of cheese during the late fall, the winter and the early spring months. The less fodder cheese we make the better it will be for our cheese industry, as fodder cheese is always of inferior quality, especially as regards flavor. Rancidity and food and stable flavors are all too common in fodder cheese. A much better quality of butter than of cheese can be made from winter milk, since the flavor of the cream and butter can be largely controlled through pasteurization, and the use of a good starter to ripen it. When we say this, we do not mean to encourage carelessness in the care of milk. Patrons should feed no food that will injure the flavor of the milk, and unless the greatest care is exercised, both in milking and as to where the milk is kept, stable and other injurious flavors will be all too common. Even in winter, milk should be cooled as soon as possible after milking, and kept where it will be cool, but will not freeze. Rancidity is very common in winter milk. I believe this to be largely due to pouring the warm into the cold milk of previous milkings, and to not delivering the milk quite frequently enough. Milk should be delivered three times per week during the winter months. Every winter creamery should have a pasteurizer and cooler. The milk should be heated to 175 to 180 degrees before entering the separator, the cream cooled to about 65 degrees by running over a cooler, and a good percentage—say, fifteen per cent.—of a good, clean-flavored starter used to ripen the cream.

Pasteurization and the use of a good culture are absolutely essential to success in winter butter-making. Good commercial cultures are obtainable at reasonable prices and should be used.

Cream-Gathering Creameries.

I must be very brief in my remarks upon cream-gathering creameries. The cream-gathering creamery system of butter-making seems to be rapidly gaining in favor and importance with us. It has much to recommend it, such as its suitability for sparsely-populated districts, the ideal condition of the skim-milk for feeding purposes,

the reduced cost of delivering it at the creamery, etc. But it is also fraught with danger to our butter industry. Our leading buyers say that the butter from cream-gathering creameries is not worth within two cents per pound of the best separator creamery butter. We would not like to say that the lesson to be learned from that is that the cream-gathering system is doomed to failure, but we would say that means that a change must be wrought in our methods of conducting them.

I have had considerable to do with cream-gathering creameries, and would make a few suggestions, which, if carried out, would, I feel certain, result in a very material improvement in the quality of the product of these creameries.

To avoid undue loss in the skim-milk, hand separators should be used.

The separator should stand in a pure atmosphere, and should be kept thoroughly clean. Many hand separators are allowed to get into a filthy condition.

The milk should be creamed as quickly as possible after milking.

The warm cream should be put into a separate vessel and thoroughly cooled before being mixed with the cold cream from the previous milkings. This is most important.

A cold water tank should be provided for cooling the cream and keeping it cold until sent to the creamery.

Each patron should store a supply of ice to use plentifully in the tank to cool the cream and hold it at a low temperature.

The cream should be gathered sufficiently often, at least three times per week in summer, and not less than twice a week during the balance of the year.

If the cream were well cared for and collected sufficiently often, it is quite likely that much good would accrue from pasteurizing it at a high temperature and using a good culture to ripen it.

The President: There is no man in the Province understands what he is talking about better than Mr. Mitchell does. He has given you a learned address on what he knows himself, and if you desire to ask him any questions he will be delighted to answer them.

Mr. Ross: How could you produce a clean mild starter that will not injure the flavor of butter?

Mr. Mitchell: I am not very much in favor of a mild starter. I like an active starter, one that will take possession and control the flavor of the cream. You want a good, active, clean-flavored starter. There is a big difference in starters, and you can readily tell whether it is an active one or not, and if I have got an active starter that would not take possession I would get rid of it. During the winter time I think it would be better to obtain a culture, several of which are manufactured. For instance, the Douglas Butter Culture, manufactured by the Douglas Butter Culture Co., of Boston, or the Hansen. Obtain milk that is clean in flavor. Separate it, and pasteurize it to clean out all organisms that are present in the milk. Then cool it down to 70 or 75 degrees, and add the culture. Use about a gallon of skimmed milk, allow it to ripen in about twenty-four hours' time. Then, to make the starter, take some of the cleanest milk that comes into the factory, and separate it and pasteurize it, and to about every one hundred pounds of starter use from three to five pounds of the culture thus prepared, and hold this at a temperature of about seventy degrees. It will ripen in twenty to twenty-four hours' time. Some of the things you look for in a good starter are that it should coagulate properly and have a clean, acid taste and smell. Before using the starter the next day, skim a little off the surface, because the surface may have become contaminated by exopsure to the atmosphere. If you take this precaution, you will likely be able to carry it a longer time than if you did not. In using it, it should be stirred up and poured from one vessel to another until it gets into a creamy consistency. Use about fifteen per cent. of the starter in the cream. Very frequently we add ten to fifteen per cent, of water to our starter for the purpose of making the starter break up better when we come to stir it up. Put the water into the skimmed milk before pasteurizing it, and pasteurize the whole thing together.

A Member : As pasteurizing of milk and cream is now becoming an important factor, I think we should pay more attention to it. I was very much interested with regard to what the previous speaker said on that subject. I have had some little experience along this line, and I have found it to be a difficult matter to pasteurize cream gathered from the farm ; and as we are now face to face with the cream-gathering system, we have to make the best of it. Separators are being shipped out by the car load, and the farmers are buying them because they find there is profit in it. I think that gentleman struck the right chord when he suggested the patrons should do the pasteurizing. I am going to try and introduce that system this coming season ; but the difficulty in that will be, that the cream that requires pasteurizing the most will get the least attention. Still I think it will be a move in the right direction. Last fall I conceived the idea of using the preservative in the cream instead of in the butter, and I found I got a good deal better quality of cream by using a preservative in the cream.

Mr. Ross : I should like to ask Mr. Mitchell something more in relation to this starter. Would the same starter do for cheese and butter ? I am speaking now of the manufacturing of cheese on a small scale. This fall while up at the Toronto Exhibition I saw them teaching farmers how to make cheese. Would it be necessary to take this butter starter and put it into the milk in order to bring acidity sooner, and would it affect the flavor of the cheese, or would it be better not to put it in at all ?

Mr. Mitchell : We use starters right along, particularly in the fall of the year for cheese-making purposes.

Mr. Ross : Do you use the same starter that you do for the butter ?

Mr. Mitchell : Yes. Generally speaking, a starter that is good for one is good for the other. Some of the manufacturers of commercial cultures make a little difference in the starters they send out for butter-making and cheese-making purposes. Others make no difference at all, so that altogether there is no difference in the two. What we want for both purposes is a real good clean-flavored starter with good, clean acid taste and smell. Of course, for cheese-making purposes a very small amount should be used, and only used when it is needed. If the milk is ripening sufficiently fast without it, it should not be used. This morning I stated that a nice amount of starter to be used in cream would be fifteen pounds of starter to one hundred pounds of cream. We would not require to use over half a pound of starter to one hundred pounds of milk for cheese-making. Use only a good starter, and use it when it is needed, and use it in the right quantity, and the starter can be made to serve a good purpose in cheese-making as well as in butter-making.

When starters were first spoken of, especially for cheesemaking purposes, they were strongly condemned, and that was largely due to the fact that bad starters were used. A starter with a bad flavor will work just as much harm as a starter with a good flavor will do good. In the summer time under average conditions you do not need a starter.

If the patrons take good care of the milk and send it to in a good condition it is altogether probable that good organisms will predominate in that milk and develop good flavors, and with these conditions you need no starter. Coming on to the fall, we find we can usually use a starter to advantage. I think our cheese and butter-makers are making a point of studying starters so as to know a good starter from a bad one.

If you try to make a starter, and it turns out bad, you should throw it away. If you make a success of it, and have a good one, you are all right. Make sure you have a good clean flavor, and use the right quantity. In cheese-making you could over-do it.

Mr. Ross : You advocate using one-half of one per cent. ?

Mr. Mitchell : Yes. We very seldom use as high as one per cent. We call that a large amount of starter to use for cheese-making purposes. Some use 10, 12, 15, and 20 per cent. good flavored starter in cream. A difference of one or two per cent. in the case of cream-ripening does not make so much difference. One person might use

10 per cent. of starter in cream, and ripen the cream at a temperature of 70 degrees, and start to cool down at the right time, and get good results; and another person might use 15 per cent. and ripen the cream at the same temperature and cool sooner, or he might ripen at a temperature of 65 degrees.

There are various factors that control the ripening of cream. You can easily control the amount of acid there will be in the cream at churning time. I think especially during the fall and winter months it is advisable to try to obtain a good commercial culture. You could obtain it from Hansen's Laboratory, of the Douglas Company, in Boston, or from Dr. Connell, Bacteriologist at Kingston, or Professor Harrison, at Guelph. They have found that there has been such an increased demand for this culture that they cannot supply them very readily from the colleges. In the summer time we will often get a good starter by taking a good sample of milk and allowing it to ripen naturally. Some take a good sample of milk and heat it to a high temperature, and pour it from one vessel to another in a good atmosphere so as to keep it seeded with desirable organisms, that a pure atmosphere contains, and then allow it to ripen naturally. The commercial cultures are coming more and more into use, and I think will be generally adopted as time goes on; they are safer than attempting to use natural cultures, especially during the fall and winter months.

A Member: At what stage would you use that starter for cheese-making; before the milk has heated or after?

Mr. Mitchell: It will not act very much until the milk is warmed up. We usually put it into the vat when the milk has warmed up, and we can tell better the amount of starter to use.

A Member: You did not say anything about the length of time culture should be carried on before it is used. A commercial culture has a very bad odor the first day or so.

Mr. Mitchell: Very often a commercial culture is not as good when it is first ripened as it is after a day or two. We do not require to carry it more than a day or two before we could use it. If it does not prove all right in that time you had better discard it.

Mr. Ross: How long can you keep a starter good?

Mr. Mitchell: Some will carry a starter for a week and others will carry it for a month. It depends upon the care it receives.

A Member: Do you put the starter through a strainer?

Mr. Mitchell: For cheese-making it should be put through a strainer.

A Member: What would the result be if you did not strain it?

Mr. Mitchell: If there were little parts of this coagulated milk throughout the vat when you had coloring matter, they would not take the color.

A Member: What is the cause of milk not churning?

Mr. Mitchell: They used to think it was the evil spirit in it, and very often they would remedy it by heating the horse shoe and churning it in the milk, and that drove the witch away. We know that the effect of that was to raise the temperature. That occur more particularly in the winter time, in the case of a cow that has been milking for a long time. If the cow is fresh in the spring, and you are making butter from her milk in the winter time, you will have the trouble in the latter period, owing to the tendency of that milk to become viscous or thicker in its nature, and for that reason the cream will not rise so readily on it. The fat globules in the milk become smaller. The larger the globules the more readily they will rise; and you will find that they are much larger in the earlier period of the cows' lactation. The thinner the cream, the higher temperature it should be churned at. This past winter a Kingston man had a Jersey cow, and they could not churn her milk, and they thought there was something fundamentally wrong with the milk, and they stopped using it altogether. We had some of that milk brought to us, and we put it through the h and seaprator, and by doing so we were able to make a richer cream than you could by setting the milk in the

ordinary way. We took a common sealer, and put some cream into it at a temperature of 60 degrees. It churned very readily in ten minutes by just shaking the jar. That shows that in that case the cream was too thin. We had another similar case, where they had churned the cream into a foam, we simply ran heat into the cream, and it churned readily.

A Member: What course would you advise to remedy that state of affairs?

Mr. Mitchell: If you are setting milk in the winter time, I said it would be very advisable to add a little water at a temperature of 100 or 110 degrees to the milk before setting it, so as to make it thinner, and so that the cream can rise on it more readily. Add about 10 per cent. of water. That is the only time of year that I think there is any advantage in adding water to the milk before setting. Of course, the real remedy is to use a hand separator.

A Member: If cows eat frozen grass in the fall, has that any effect in making the milk hard to churn?

Mr. Mitchell: When they are on dry food it will be harder to churn than when they are on grass.

A Member: Will the fact that the cows have gone without salt affect the churning?

Mr. Mitchell: Yes, it has a tendency to make it harder to churn.

A Member: Will adding warm water to the milk before separating it with the hand separator and make it churn easier?

Mr. Mitchell: There is no real necessity for that, because you can control the cream.

A Member: I had an experience contrary to that three or four years ago. We set the milk in pans and we could not churn it. We used separators, and that was even worse; there was a butter factory near and we sent the milk there, and never heard of any more trouble about it. I suppose it was because they had milk from new cows mixed with it?

Mr. Barr: At that time of the year farmers have a small quantity of milk, and a small quantity of cream, and they are inclined to keep it a little too long, and I think that has a bad effect on the churning. Pasteurized cream as a rule churns easier than raw.

Mr. Honey: I have come to the conclusion that a large percentage of the trouble is due to the stable, and the feeding of the cow. In the summer time the cow gets plenty of succulent food. And I think a great deal of the trouble with the churning is indigestion in the cow. I think that if you will give the cow a certain amount of succulent food with the bulky food, you will have very little trouble. I have no doubt that the length of time a cow has been milking has something to do with it. We have found that the difficulty in churning was due to one particular cow. We have had to go through the whole herd to find out which one was giving us the trouble, and we have found that if we were careful in feeding we had no trouble. I think if we would mix our food with brains we would have better results. If you mix brains with the food, or use your brains in mixing the food, you will have less trouble and will not require to use so much muscle in order to churn. I believe these dairymen's conventions are good in their place, but I believe there are a lot of our learned men getting too far away from the cow. They talk about the milk and the cream and the churning, and it is all good in its place, but they are getting too far away from the cow. I am very near related to the cow. (Laughter.) I have heard the Chairman say, "That blessed cow," and I thought the cow deserves the name. She has done more for Ontario than anything else, and we ought to pay more attention to the cow; she is the best piece of machinery we have. We do not need to take her to the blacksmith or the foundry. She does not ask credit for more than 12 hours. I believe that if at this convention we had a man or two who would stay right with the cow it would be much better for us. (Applause.)

A Member: Mr. Mitchell said it would be better if the farmer would heat the milk and pasteurize it. Take the average farmer who has a small quantity of milk, and

if he put it on the stove to heat it, the chances are he would burn it and spoil it. I think the best way is to put hot water in the milk.

Mr. Derbyshire: If the men who are making butter in this locality would use hand separators, and see that the separator was started as soon as the cow was milked, and see that the milk was fed to the calves, you would have the hair growing on them before breakfast. If you will skim the milk immediately it comes from the cow, without letting it get cold, the better it will be, and the more cream you will get. Feed the skim milk to the calves while it has the mother's breath in it, and then put your cream into a nice clean vessel and set it up to ripen. The young animal loves the milk as close to the mother as it can get it.

A Member: We do not have the help to do that.

Mr. Derbyshire: Get the help.

A Member: At the creamery at Cobourg there are three separating stations, and there are seven men there who have hand separators, and I would like to know what is the best method to adopt for putting that cream in with the other cream?

Mr. Mitchell: Before answering that question, I would like to say that I do not thing I have endeavored to talk over other people's heads. I have tried to be practical. I was brought up on a farm; I went to learn cheese-making, and I followed that up. I have always been on the practical side of dairying, and I do not claim to be any learned gentleman, and I did not come here to have any slur of that kind thrown at me, because I am not trying to throw slurs at anybody else. I think I did mention the fact that when the cow was on grass her milk was easy to churn; the fats are softer when the cow is receiving succulent food. (Applause.) Now, to answer the question; you will find that the Babcock test is an accurate test for determining the butter fat in milk or cream, and can be adopted for either system.

Mr. Cochrane: The buttermaker refused the hand separator cream because he said he could not make a uniform butter. He said the hand separator was not turned at as high a speed, and therefore the cream was not of the same quality.

Mr. Derbyshire: Get this man to come down to the Kingston Dairy School, and find out how to handle this business properly.

Mr. Mitchell: I think the cream should be delivered in as sweet a condition as possible, and I think it would be advisable to pasteurize the cream. I think it would be well to put this cream in with the milk and pasteurize the milk and the cream together. It would simply make the milk that much richer.

Mr. Honey: I would be sorry that Mr. Mitchell should think that in my remarks I was trying to throw a slur at him. I enjoyed Mr. Mitchell's address as much as anything at the convention. I was not throwing a slur on education. I did not intend anything of the sort. I do not think we should expect these gentlemen to take up every part of the work. I think Mr. Mitchell misunderstood me in what I said; it was not intended as a slur to him, or any other gentleman on the platform. (Applause.)

Mr. Mitchell: Thank you. I am sure that as far as I am concerned there are no hard feelings.

A GLANCE A YEAR AHEAD.

Mr. G. G. Publow: The President wants me to tell you what I am going to do this year. That is rather a hard question, but I may say that with your assistance we are going to endeavor to carry out what we started last year and do it better. (Applause.) You will quite readily see from the little friction that appeared this afternoon, that we are being looked after, and that the people of this country have made up their minds that those who hold office in connection with this business attend to their duties.

We hope to carry out the work this year the same as last, syndicating factories throughout Ontario. You will be offered, I expect, the same service for the same

money. That is, you will get the services of the instructor for the sum of $15. His duty will be first to visit your factory to see that the cheesemaker is serving you well; that he is making the most cheese, and best cheese out of the milk you give him. If he finds he is not doing that, the instructor will be expected to instruct the cheesemaker to do better. If there is anything wrong with the milk, it will be the duty of the instructor to find out where it is, and what is the cause; and if the patron who is to blame refuses to rectify the wrong, it will be the duty of the intsructor to call a meeting of the patrons and point out the difficulty.

At the present time the instructors are handicapped because they have no power to enforce any conditions. I think they should have at least the power of a Board of Health Inspectors. When they go to a cheese factory and find an unsanitary state of affairs, they should have the power to make them improve the premises. I wish the farmers of the country would wake up, and not let those poor factories exist. They are seeding this whole country with undesirable bacteria, and that is causing trouble to every one else in the business.

We should see that we supply the cheesemaker with good milk, and then insist upon his having the factory in proper condition, and upon his being competent to make the best product in the world.

No country in the world has a better reputation for good cheese than we have in Canada, but that does not say that we cannot do better. Some farmers think that the inspectors are going out to spy after them, and to try and do them harm. That is not the case. They are sent out to do you good, and to help you on to to help you to make more money out of the business. The inspectors, as a rule, have been kindly used; but in some cases they do not get the best treatment. We have found difficulty in getting the best men to accept the position of inspector. An instructor should be able to handle the people as well as the cheesemaker, and he should know all about the business from the ground floor up. When we send an instructor to you, please listen to him kindly. Do not tell him to get off the farm. Do not say, "I have always had that milk setting in that place, and I am going to leave it there, and if you don't want to take it, somebody else will." We cannot do without your assistance; we want your co-operation, and we want you to see that you have a good man in your factory. You should go down to these cheese factories and look over them. They are practically yours. If the cheesemaker is not clean and tidy, tell him to tidy up, and clean himself up or get out. If the cheesemaker tells you that your milk does not smell very well, and if he has a dirty and bad-smelling factory, you can say to him, "Well, your cheese factory does not smell very well"

If you could increase the home market for cheese ten per cent. you would be doing a big thing for the cheese industry. I have had farmers ask me to pick out a good cheese for them because they would not eat cheese made in their own factory. Now, how can you expect the buyer to give you the highest price for cheese if you will not eat your own? I believe most of us will be able to accomplish a good deal this year if we will only try.

I expect the same thing will be done this year as last with regard to grouping the factories, and I hope that the factories that wish to come in will notify us in good time, so as to give us an opportunity to select good men. I do not think there is any factory in this country that can afford to do without an instructor. We find that even with the very best cheesemakers there is a good deal to be accomplished. The instructors stimulate them to do better work.

If anything special was accomplished this year, it was in the cleaning up of the factories. More factories were cleaned up this year than have been for fifteen years, and the quality of the cheese has been better this year than ever before. There is more loss occurs to the farmers of this country owing to the condition in which the milk comes to the factory than by the adulteration of the milk. No person gets any benefit by sending bad milk, and a great many people are injured.

In one factory last summer we were getting milk in bad condition. We divided the milk, and put the best milk in one vat, and the poor milk in another, and the milk that was in a poor condition tested 1-10 more in fat than the other. The poor vat took 10 1-2 pounds of milk to make a pound of cheese, and four hours longer in manufacturing it, and we did not have as good cheese. Look at the worry and the loss to the patrons of that factory. (Applause.) If you want improvement along these lines, lend us your assistance and we will do our best to help improve the quality of this most important product.

The President: After getting a report of some cheese from Montreal, I thought I would go out and see what kind of a factory this maker had. If you have seen any of these fellows who stand around corners, then you know the kind of a cheesemaker that was there. He had rejected milk from three patrons that morning, and he was swearing around the factory, and going on in a furious way. I took a good look at the fellow. His hair was not cut; his shirt was dirty, and his pants would stand alone, and I would like to know if the patrons are going to clean up their cans and take an interest in sending good milk to that sort of a cheesemaker. I heard a man say yesterday that he did not join a syndicate because he got the biggest price for his cheese. Here are four factories in the group, one making fancy cheese, and the others making cheese that just passes the buyer. What is going to be the price of cheese from those four factories, one making fancy cheese and the others making ordinary cheese? It is the uniform price that the four will bring, and I think it is better for the good factory to try and raise up the other three to their standard. Help one another along, and we can improve this business. We must stand together and build up this great national industry, and place it where it ought to be, and put ourselves out of the way of the ordinary men. It is our business to make the finest cheese that is made in the West. We have had a great convention in this city. The best that has ever been held in Canada, so far as I have seen, and I am sure we all feel better for coming to Belleville. I have learned a great deal, and I am sure everybody has. If you raise the standard of cheese in this district, it raises the standard of cheese all over Canada on account of the high standard you have here. I would like to see all these makers go to the Dairy School. We have the best teachers in Canada there. I say this because I know what I am talking about. I have visited other schools, and I know we have the best men. Go there, and get enthused, and put more earnestness in the work; it will do you good, if you only stay there a week or two. Go right home to your factory now and begin to talk cleaner methods, larger milk capacity from each cow; better stables, cleaner hands; and when they go to milk the cow, get them to put on a white cap, and white linen, and make the cow believe your love her just the same as the girl you go to see Sunday night. (Laughter.) You slick up your hair, and put on your best clothes when you go to see your girl, and you ought to go in your working clothes, so as to let her see what you are like when you are working. Now, when you go to milk the cow, slick up, and make the cow understand you are proud of her, and she will give you more milk and better quality, and she will do it cheerfully.

Mr. Anderson: When we started to work to get this convention at Belleville, we found quite a lot of opposition, but if we were to talk about holding it here again, everybody would be with us, and there would not be any opposition at all. Dr. Simmons and I were appointed delegates to go to Toronto, to see if we could persuade them to go to Belleville. I told President Derbyshire then that if they would come to Belleville, I would guarantee it would be the best convention we ever held.

Mayor Graham: Before this meeting is closed, I would like to offer a suggestion to Mr. Publow, and that is that in his inspection of the factories he should have his inspectors leave a written report of their inspection. It may be that it has been done in the past. I own a cheese factory that was in one of the syndicates this year, and I did not receive any report of the work of the inspector at that factory.

Mr. Publow: We did that last summer. These inspectors were supplied with blank forms, and they send a duplicate report to me. They first had to report on the condition of the factory, the milk, and the cheese. In some cases the reports were not left at the factories, but I will insist this year that a report be left at the factory after each visit. We have to be very careful in making reports as to the quality of the cheese because it is a perishable article, and it is different at one time from another.

A Member: I happened to be an inspector at this factory of Mr. Graham's, and I made out a printed report and gave it to the salesman. If Mr. Graham wants to see the reports he can see them at any time.

Mr. James Whitton: I do not think it would be well for us to leave such a grand convention as we have had here without at least moving a vote of thanks to our honored Chairman, the man who has stood at the back of this convention for so many years; the man who has brought this dairy institution up to what it is to-day. I am convinced that he deserves nearly the whole credit. I have much pleasure in moving a vote of thanks to our Chairman, who has conducted these meetings so nobly, and who has carried the dairy institutions of the country to the front.

The Convention was brought to a close by three cheers for the King, the Chairman, and the May and citizens of Belleville.

FINANCIAL STATEMENT.

For the Year Ending December 31st, 1903.

Receipts.

Cash on hand from previous year	$ 221 23
Members' fees	250 00
From advertising	119 00
Government grant	4,000 00
Fees from cheese factories	8,686 00
Cash advanced by treasurer	1,670 55
	$14,943 78

Payments.

Grant to Ontario Provincial Winter Fair	$ 50 00
Expenses directors' meetings	200 00
Secretary's salary	250 00
Treasurer's salary	30 00
Postage, stationery, etc.	116 76
Printing and advertising	336 97
Reporter	50 00
Miscellaneous	54 85
Delegates to Convention	35 00
Instructors for 1902	100 00
Instructors for 1903	
G. H. Bensley, $615; R. W. Ward, $615; J. Villineuve, $613; H. H. Howey, $620; J. B. Lowery, $624; R. A. Rothwell, $613; I. H. Thompson, $609; S. S. Cheetham, $613; C. W. Norval, $611; A. McDonald, $613; J. Irwin, $611; W. J. Carson, $611; J. H. Echlin, $612; W. R. Morton, $609; I. B. Code, $612; Alfred Street, $613; W. J. Gardiner, $611; D. M. Wilson, $619; A. M. Ferguson, $603; H. Singleton, $603; A. H. Wilson, $611; W. J. Hall, $603	13,464 00
Expenses of dairy meetings re formation syndicates	256 20
	$14,943 78

MORDEN BIRD,
F. W. BRENTON,
Auditors.

J. R. DARGAVEL,
Treas. D. A. E. Ont.

DAIRY SCHOOLS OF ONTARIO.

CENTRAL DAIRY SCHOOL.

(In connection with the Ontario Agricultural College).

H. H. Dean, B.S.A.	Professor of Dairy Husbandry.
R. W. Stratton	Chief Instructor in Cheesemaking.
A. McKay	Assistant Instructor in Cheesemaking.
Mrs. J. M. Nettleton	Instructress in Cheshire Cheesemaking.
J. A. McFeeters	Instructor in Separators and Milk Testing.
Wm. Waddell	Instructor in Buttermaking.
Miss Laura Rose	Instructress in Buttermaking (Farm Dairy.
H. Rive, B.S.A.	Instructor in Hand Separators and Milk Testing (Farm Dairy).
J. B. Smith	Instructor in Boilers. Engine, Piping and Repairing, Etc.
F. C. Harrison, B.S.A.	Lecturer and Instructor in Dairy Bacteriology.
W. P. Gamble, B.S.A.	Lecturer and Instructor in Dairy Chemistry.

The first winter course was one of three weeks in December, 1903, for creamerymen. While the attendance was not large— ten buttermakers—the interest was good and well-sustained for the three weeks.

The regular session of the Dairy School began January 4th, 1904, and continued until March 25th. The attendance was not so large as in previous years. To some extent this was due to the fact that the Short Course at the MacDonald Institute offered dairying as one of the optional subjects and quite a number of ladies took the domestic science work, which included dairying, in referenpce to a dairy course only. This feature is likely to continue, as farmers' daughters would naturally prefer the domestic science along with some dairying rather than a three months' course of dairying alone. This dairy work for the MacDonald Institute ladies was given in our farm dairy, but such students are not enrolled as members of the dairy class. In return for this, the ladies in the dairy class were given instruction one afternoon of each week at the MacDonald Institute.

The work covered was similar to that done in former years. There were two lectures each day, except Saturday, when the Literary Society meeting in the afternoon took the place of a lecture. The remainder of the day was given to practical work in cheese and butter-making, milk-testing, firing the boiler, running the engine, piping and soldering, together with practical work in the chemical and bacteriological laboratories.

Experimental work with the advanced students was carried on as far as practicable. In the month of February a special instructor in Cheshire cheesemaking was engaged. The cheese were very nice in quality, but the system is not likely to supplant the regular Canadian Cheddar method in factories. The Cheshire appears to be very well suited for farm dairy cheesemaking, and as the yield is somewhat greater than from the Cheddar method, it is worthy a trial by farm cheesemakers, of whom there are a few in Ontario. At the time of writing we have been unable to sell the Cheshires for any higher price than we obtained for our regular Cheddars. Doubtless, a market would have to be created for them in Canada.

A course of instruction in the making of cheese boxes also formed a valuable part of the term's work for factory students.

Course for Instructors and Experienced Makers.

A sepcial ten days course, April 5th to 15th, was given for the Instructors of Western Ontario, together with any experienced cheese and butter makers who might wish to take advantage of this special instruction before commencing the season's operations. The attendance numbered twenty. Special stress was laid upon the bacteriological and chemical instruction. As most of those taking the course were well-posted in the ordinary details of cheese and butter making, it was thought advisable to place the emphasis uopn the two sciences which are so closely associated with the development of the dairy industry. We are sepcially indebted to Professors Harrison and Gamble for their assistance in bacteriological and chemical work. There ought to be larger accommodation for instruction in dairy bacteriology. This science must have closer study on the part of the cheese and butter maker. As the value of dairy products depends almost entirely upon their flavor, and the flavor upon the bacterial contents of the raw mtaerial, milk or cream, we can see that intelligent cheese and butter makers must look more and more to the bacteriologist and chemist for assistance in improving Canadian dairy products.

It is expected that the creamery course in December, 1904, will include instruction specially suited for milk dealers and producers of milk for town and city milk trade. This is a very important feature of dairying, which up to the present has been entirely overlooked by our Dairy Schools. We shall probably start in a small way, and then, if the interest warrants the expense, we shall probably fit a room specially for this work, and secure the latest apparatus for handling milk to be sold in towns. Our herd and stable would furnish the practical illustration necessary from the producers view-point.

We expect to make several alterations and improvements in our dairy equipment for the coming year, so that the classes of 1904 and 1905 may expect better work and instruction than has ever been given before.

H. H. DEAN, Superintendent.

EASTERN DAIRY SCHOOL, KINGSTON.

G. A. Putnam, B.S.A..... Director.
J. W. Mitchell, B.A..... Superintendent.
G. G. Publow..... Instructor in Cheese Making.
J. H. Echlin..... Assistant Instructor in Cheese Making.
Robt. Ireland..... Instructor in Butter Making.
Thos. E. Perry..... Assistant Instructor in Butter Making.
Jas. Stonehouse..... Instructor in Separating.
W. J. Carson..... Instructor in Milk Testing.

I take much pleasure in offering this, my first report, as Superintendent of the Eastern Dairy School.

The session opened on December 1st and closed on April 13th, during which time three short courses were given, besides a course to the Syndicate Instructors.

In every important respect the session has been a very satisfactory one. The attendance at the school has been large, 148 students in all having registered during the session—139 from Ontario, 7 from Quebec, one from New York State, and one from Michigan. It is pleasing to note the growing tendency on the part of those attending the school to remain a reasonable length of time. The major portion of our students registered during the Long Course, and 22, an unusually large number, wrote on our final examination. One student entered at the beginning of, and remained until the close of the session, while several students remained with us during two or more courses. This suggests the importance of paying special attention to our Long Course, and possi-

bly lengthening it somewhat. It is now eight weeks in length. Cheese makers should know more than cheese-making and butter-makers more than butter-making. The broader their knowledge of dairying, and the more they know about the farm, as well as the factory side of it, the more useful dairymen they become, and it is interesting and encouraging to note that any of our Long Course students, during the past session, took up the study of butter-making as well as cheese-making, and manifested a deep interest in the lectures upon all the different phases of dairying. The ground covered in our Long Course, in the lectures and practical work, during the past season, included: General Dairying, Bacteriology, Chemistry of Dairying, Cheese-Making, Separators and the Creaming of Milk, Butter-Making, Milk-Testing, Care of Boilers and Engines, Soldering, etc.

The supply of milk throughout the session was fairly adequate, although we hope to improve matters another session by adopting a scale of prices that will encourage the production of a larger supply during January and February. The following table gives by months the quantity of milk received during the session: November, 72,478 lbs.; December, 187,820 lbs.; January, 111,971 lbs.; February, 119,928 lbs.; March, 229,995 lbs.

The yeast organism, which gave so much trouble in many cheese factories last season, was quite commonly present in the milk supplied us during the session. This would suggest the necessity for patrons and factory managers being on the alert throughout the coming season. Scrupulous cleanliness, the scalding of utensils thoroughly, keeping the whey tanks thoroughly clean, and cooling the milk well under 70 degrees—better, 65 or below—immediately after milking are the great safeguards.

The session closed with the Instructors' Course, which terminated on April 13th. The instructors expressed themselves as highly pleased with the course given them, and much good should accrue from repeating this course from year to year, as it would mean the introduction of an efficient and uniform system of instruction at our factories, which would in turn lead to the production of a uniformly superior quality of cheese throughout the Province and the Dominion. It is to be hoped that the time is not far distant when all of our Syndicate Instructors and cheese and butter-makers will be compelled to hold certificates from one or other of our dairy schools, and the factories to take out licenses, for we must not lose sight of the fact that our dairy industry is a national one. We hope to be in a position by another session to offer increased accommodation and in improved course of lectures and instruction to those attending the school.

Respectfully submitted,

J. W. MITCHELL, Superintendent.

REPORT OF WESTERN DAIRY SCHOOL, STRATHROY

Session of 1903-1904.

Geo. A. Putnam, B.S.A.	Director.
Geo. H. Barr	Superintendent.
John H. Scott	Instructor in Cheesemaking.
Frank Herne	Instructor in Milk Testing.
J. C. Bell	Instructor in Butter Making.
J. R. Burgess	Instructor in Separator.
Miss Agnes Smith	Teacher of Domestic Science and Home Dairying.
W. P. Gamble, B.S.A.	Chemist.
J. P. Whitehead, V.S.	Veterinary Science.

The school re-opened December 1st for a Special Creamery Course for those wishing to specialize in butter-making, and about the usual number of students were in

attendance. The regular Dairy School term commenced January 4th and closed March 24th. Forty-five attended this course. A number of them were men of long factory experience, indicating that the cheese and butter-makers of the district have confidence in the school.

A thorough training was given in all branches of practical dairying, special attention being given to the preparation of cultures for both cheese and butter-making. From six to ten different kinds were kept on hand, the students making and testing them daily. Some most valuable lessons were learned from cooking and handling curds in different ways and in using good and bad cultures.

Pasteurizing whole milk, sweet cream, sour and tainted cream; adding pure culture to pasteurized sour cream; and churning thick and thin cream, were some of the interesting things done in the Butter Department. Special attention was also given to testing composite samples of milk and cream and paying for cream by the Babcock test in cream-gathering creameries. Each student spent some time in firing the boiler, repairing valves, pipe fitting, etc.

The Domestic Science Department was a bright and interesting part of the school work this year. Classes were held on Tuesdays, Thursdays, and Saturdays of each week for the regular students, and a public demonstration was given each Thursday afternoon by Miss Smith.

Owing to the stormy weather and bad state of the roads, only one public meeting was held for the farmers and others interested, when the lecture-room was crowded to hear Prof. Dean and Prof. Harrison speak on Dairying and Bacteriology respectively.

A very fitting and pleasant occasion brought to a close a most successful term, when the ladies of the Domestic Science class gave the students and staff a dainty supper, made and cooked by themselves.

GEO. H. BARR, Superintendent.

ANNUAL REPORTS

OF THE

LIVE STOCK ASSOCIATIONS

OF THE

PROVINCE OF ONTARIO

1903

—

DOMINION CATTLE BREEDERS' ASSOCIATION

DOMINION SHEEP BREEDERS' ASSOCIATION

DOMINION SWINE BREEDERS' ASSOCIATION

ONTARIO POULTRY ASSOCIATIONS

PROVINCIAL WINTER FAIRS

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Dominion Cattle, Sheep and Swine Breeders' Associations

REPORT OF THE SECRETARY.

The following report was read at the annual meetings, February 5th and 6th, 1904:

The assistance given by the Ontario Department of Agriculture for the encouragement of the live stock industry has, to a great extent, been given through the Live Stock Associations. At the Ontario Agricultural College and through the Farmers' Institutes, instruction is given in this branch of agriculture. To the Live Stock Associations, however, grants are made to be spent in the interest of live stock, and for no other purpose. The Associations are expected to spend this money so as to bring the best results in encouraging and developing the live stock industry, by means of education, assistance in marketing, and the extension of live stock trade. The Live Stock Associations should feel themselves entirely responsible for this branch of agriculture. Each member should feel himself personally responsible for the work. This method of conducting this work has been adopted by the Department to encourage the co-operation of those who are engaged and are vitally interested in its development. Every person who is interested in live stock should be a member, and a working member, of the Live Stock Associations. He should see that it is in his interest to co-operate with others engaged in the same line of work, in assisting to develop, making suggestions, and carrying out plans which it is decided are for the benefit of the live stock industry of this Province.

It should also be looked at from a broader standpoint. We are citizens of a Dominion made up of various Provinces, each having organizations for the development of the live stock industry in their districts. There is work which can be, with benefit, taken up in connection with these other societies, work which is of a national character, and which will be of national benefit. It is in our interest to see that the live stock industry is developed and encouraged throughout the whole Dominion. When the live stock outlook is particularly bright in one part of the Dominion, it is bound to reflect on all the parts which make up the whole. We are all Canadians, all interested in the development of the live stock business; all should co-operate, and there should be the greatest good-will existing between those engaged in this work, no matter in what part of the Dominion they reside. We are all working towards one goal—the advancement of the live stock industry in Canada.

Grants.

The first grant was made to the Sheep Breeders' Association in 1890, $250. In 1891 the grant was increased to $300, and a similar grant was made to the Swine Breeders' Association. In 1893 these grants were increased to $700, and again in 1894 the grant to the Sheep Breeders' Association to $850. In 1896 a grant was made to the Cattle Breeders Association of $1,500. The grant to the Sheep Breeders' Association was at the same time increased to $1,500, and the grant to the Swine Breeders' Association to $1,200. In 1899 the grant to the Swine Breeders' Association was increased to $1,500. In 1900 the grants to the three associations were increased to $2,000, and in 1903 to $2,500. In addition to these grants, $500 has been given to assist in holding the auction sales at Guelph and Ottawa. During the past two years appropriations of $3,000 have also been made to hold the Eastern Ontario Live Stock and Poultry Show at Ottawa. (This does not include the grant for poultry at this show.)

This now makes a total annual grant of $11,000 to these Associations. In addition, a grant of $650 has been received from the Dominion Department of Agriculture to assist in the extension of the auction sale system. Grants were also received for advertising as follows: Dominion Shorthorn Breeders' Association, $300; Canadian Clydesdale Breeders' Association, $100; Canadian Ayrshire Breeders' Association, $50. The Dominion Shorthorn Breeders' Association also gave $100, and the Canadian Horse Breeders' Association $50, towards the expenses of the attendant in charge of stock cars.

Transportation.

As there are at different times a number of complaints of shippers being unable to obtain from their station agent the reduced rate allowed registered stock, I have thought it wise to give some particulars regarding the railway circulars covering the matter. The C.P.R circular is numbered 229, dated at Montreal, August 29th, 1901 and is signed "G. M. Bosworth, Freight Traffic Manager."

The following arrangement will hereafter govern the transportation of pedigreed horses, cattle, sheep and swine in less than carloads, between stations on this company's lines east of Fort William when intended for breeding purposes only, and when owners sign the usual valuation agreement for ordinary stock and produce certificate of registration, issued by an association recognized by the Dominion Department of Agriculture.

Shipments will be way-billed at one-half regular tariff rates, and at estimated weights as per Canadian joint freight classification.

Certificates of registration must, in all cases, be produced by shipper. Agents will take note of particulars as to name of animal and age, and keep record of same, also make notation on way-bills accordingly.

Shipments may be taken without men in charge, provided owners sign the usual contract releasing the company from liability in consequence thereof.

These special rates will apply only when owners sign the usual valuation agreement for ordinary stock. The valuation for horses to be $50 each.

Shipments of sheep or swine, in quantities of three or under, must be crated. Part carloads over three must be penned off at shipper's expense, at one end of the car, or shippers, at their option, may crate any quantity over three in preference to penning them off.

Calves will be carried without being crated, but must be halter broken and securely tied with good halter in one end of the car.

Following is the Grand Trunk circular, which is practically the same, and is No. 588, dated at Montreal. September 6th, 1901, and signed "John Pullen, General Freight Agent."

Should there be any difficulty in obtaining these rates from the local agent, reference should be made to these circulars. It will be noticed that the registration certificate must be produced in order that particulars may be noted on the way-bill.

Following is a classification of estimated weights under which live stock is shipped in less than car lots, according to the Canadian freight classification:

Bulls:

Calves under six months old	500 lbs.
Six months old and under one year old	1,000 lbs.
One year old and under two	3,000 lbs.
Over two years old	4,000 lbs.

Females:

One animal	2,000 lbs.
Two animals	3,500 lbs.
Three animals	5,000 lbs.
Each additional animal	1,000 lbs.

Calves :

Under six months old ..... 500 lbs.
Over six months and under one year ..... 1,000 lbs.

Sheep and Swine : Hogs, sheep, lambs and other small animals in boxes or crates, actual weight.

When small animals are taken without being crated, the following will be the minimum weights charged :

A single sheep, lamb or hog, 400 lbs. each, or actual weight if in excess of 400 lbs.

Each additional sheep, lamb, or hog, in the same car to same consignee, 200 lbs., or actual weght if in excess of 200 lbs.

(N.B.—The rate per cwt. is twice as large for crated as for uncrated stock.)

Schedule of Rates for Stock to Manitoba and the Northwest in Association Car.

The following are particulars of rates charged for registered live stock in association car. These rates include transportation, care and feed during the time stock is in association car. If it is necessary to ship to some point to meet the car, or if it is necessary to re-ship from the main line in the West to the destination, these charges in each case will be extra. Registration certificates must, in all cases, be produced for the inspection of the station agent at the shipping point.

The main line of the Canadian Pacific Railway, through Manitoba and the Northwest Territories, is divided into the following sections :

Section 1—Winnipeg and east thereof.
Section 2—Bergen to Oak Lake.
Section 3—Routledge to McLean.
Section 4—Balgonia to Aikins.
Section 5—Swift Current to Bowell.
Section 6—Suffield to Calgary.

CATTLE.

Bulls.

Age.	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.
Under 6 months.....	$6.00	$6.50	$7.00	$7.50	$8.00	$8.50
6 months to 12 months.	8.00	8.75	9.50	10.25	11.00	11.75
12 months to 18 months	10.00	11.00	12.00	13.00	14.00	15.00
18 months to 24 months	12.00	13.25	14.50	15.75	17.00	18.25
Over 24 months.... ...	14.00	15.50	17.00	18.50	20.00	21.50

Heifers and Cows.

Age.	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6
Under 6 months..... ...	$6.00	$6.50	$7.00	$7.50	$8.00	$8.50
6 months to 12 months.	8.00	8.75	9.50	10.25	11.00	11.75
12 months to 18 months.	9.50	10.50	11.50	12.50	13.50	14.50
18 months to 24 months.	11.00	12.00	13.00	14.00	15.00	16.00
Over 24 months.....	12.50	13.50	14.50	15.50	16.50	17.50

Stallions—10 per cent. more than bulls.

Mares—10 per cent. more than cows.

Pigs.

(Must be crated in all cases.)

Weight (including crate.)	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.
Under 50 lbs.	$1.75	$2.00	$2.25	$2.75	$3.00	$3.25
Over 50 to 100 lbs.	3.00	3.50	4.00	4.50	5.00	5.50
100 to 200 lbs.	5.00	5.75	6.50	7.25	8.00	8.75
200 to 300 lbs.	7.00	7.75	8.50	9.25	10.00	10.75
300 to 400	9.00	9.75	10.50	11.25	12.00	12.75
Over 400	11.00	11.75	12.50	13.25	14.00	14.75

Sheep.

Three sheep or under must be crated.

Weight (including crate)	Sec. 1.	Sec. 2.	Sec. 3.	Sec. 4.	Sec. 5.	Sec. 6.
Under 100 lbs.	$3.50	$3.70	$3.90	$4.10	$4.30	$4.50
100 lbs. up to 200	4.00	4.20	4.40	4.60	45.80	5.00
200 and over	4.50	4.70	4.90	5.10	5.30	5.50

When three sheep from one shipper to one consignee are received in one shipment they will be carried without being crated. In such cases, when from three to nine sheep are received, fifty cents will be deducted for each sheep from the above quotations; when the number is ten or more sheep, one dollar will be deducted.

Alphabetical List of Stations Between Winnipeg and Calgary, Giving the Number of the section in which each station is situated.

Station.	Section.	Station.	Section.
Aikins	4	Elkhorn	3
Alexander	2	Ernfold	4
Antelope	5	Fleming	3
Austin	2	Forres	5
Bagot	2	Gleichen	6
Balgonia	4	Grand Coulee	4
Bantry	6	Grenfell	3
Bassano	6	Griswold	2
Belle Plaine	4	Gull Lake	5
Bergen	2	Hargrave	3
Boharm	4	Herbert	4
Bowell	5	High Bluff	2
Brandon	2	Indian Head	3
Broadview	3	Irvine	5
Burnside	2	Kemnay	2
Burrows	3	Kincorth	5
Calgary	6	Kininvie	6
Calgary Junction	6	Kirkella	3
Carberry	2	Langdon	6
Carmichael	5	Langevin	6
Caron	4	Lathom	6
Cassils	6	Leven	5
Chaplin	4	McGregor	2
Chater	2	McLean	3
Cheadle	6	Maple Creek	5
Cluny	6	Marquette	2
Colley	5	Meadows	2
Crane Lake	5	Medicine Hat	5
Crowfoot	6	Melbourne	2
Cummings	5	Moosejaw	4
Douglas	2	Moosomin	3
Dunmore Junction	5	Morse	4

Section in Which Each Station is Situated.—Continued.

Station.	Section.	Station.	Section.
Mortlach	4	Shepard	6
Namaka	6	Sidewood	5
Oak Lake	2	Sidney	2
Oakshela	2	Sintaluta	3
Parkbeg	4	Southesk	6
Pasque	4	Stair	5
Pense	4	Strathmore	6
Perceval	3	Suffield	6
Pilot Butte	4	Summerberry	3
Poplar Point	2	Swift Current	5
Portage la Prairie	2	Tilley	6
Qu'Appelle	3	Tompkins	5
Reaburn	2	Virden	3
Red Jacket	3	Waldeck	4
Regina	4	Walsh	5
Rosser	2	Wapella	3
Routledge	3	Webb	5
Rush Lake	4	Whitewood	3
Secretan	4	Winnipeg and East	1
Sewell	2	Wolseley	3
Seward	5		

In order that a comparison may be made with express rates on pigs and sheep, the following tariff is given. Rates from Toronto :

	50 lbs.	100 lbs.	Over 500 lbs.
Ft. William	$1.78	$3.75	3.00 per cwt.
Rat Portage	2.38	4.75	3.80 per cwt.
Winnipeg	2.50	5.00	4.00 per cwt.
Brandon	2.88	5.75	4.60 per cwt.
Broadview	3.38	6.75	5.40 per cwt.
Regina	3.63	7.25	5.80 per cwt.
Swift Current	4.00	8.00	6.40 per cwt.
Medicine Hat	4.38	8.75	7.00 per cwt.
Calgary	4.63	9.25	7.40 per cwt.

ADVERTISING IN THE WEST.

Since early in April, 1903, advertisements similar to the following have been published in the local papers throughout the west :

Pure-bred registered cattle, horses, sheep, swine, of any breed, and stocker cattle, selected and purchased by the Dominion Cattle, Sheep and Swine Breeders' Associations.

Associations under the patronage of the Ontario Department of Agriculture.

Any person wishing to purchase stock and unable to make a personal selection can have stock inspected, purchased and shipped by the Live Stock Associations. No commission. Nothing but actual expenses charged for buying.

Reference : Canadian Bank of Commerce.

For further particulars apply to :—The Canadian Bank of Commerce, Moosomin ; or to A. P Westervelt, Secretary Live Stock Associations, Parliament Buildings, Toronto, Ont.

When writing please refer to this paper.

As the bulk of the stock for the Western country is purchased during the winter months, there has not yet been an opportunity of deciding what benefits may be derived through this work.

In this connection there is a feature to which I wish to draw attention. There is a feeling among the breeders of pure bred stock in the Territories, and among the live

stock men of Manitoba, that they, having built up their herds and flocks of pure bred stock through purchases from Ontario breeders, should have the benefit of whatever trade there may be in what might be called their local district, and that Ontario breeders should not make special efforts to extend their trade in that direction. This, together with the fact that they consider they have not been given proper representation at the annual and other meetings of associations of which they are members, has caused a feeling of dissatisfaction, and prevented a feeling of entire good-will, which should prevail among all breeders and feeders of live stock throughout the Dominion.

Under the management of the Territorial Cattle Breeders' Association, an annual cattle sale is held in Calgary. In 1902, 220 animals were sold at an average price of $95.75. All were entered by breeders in the Territories. In 1903, 268 animals were sold at an average of $96.38.

Ram sales have been held during October in 1902 and 1903 under the auspices of the Territorial Sheep Breeders' Association. The average in 1902 was $15.62 for 108 rams. In 1903, the average was $11.84. In 1902 entries were accepted from Ontario. In 1903 only entries from the Territories were accepted.

Auction sales of swine were held last fall by the Department of Agriculture for the Northwest Territories, for the benefit of local breeders.

Just here will be of interest an extract from an article on the live stock industry of British Columbia, published in the "Nor' West Farmer" by Dr. A. G. Hopkins:

"J. R. Anderson, Deputy Minister of Agriculture, has suggested to the Association that it make its purchases in Manitoba and the Northwest Territories, for which there is much to be said. The trade interests of the prairie and the coast Provinces are closely linked, as will be perceived when we consider the interchange of lumber, butter, fruit, grain, and flour, to which list there might, with benefit to all concerned, be added pure breds and stockers."

So far as the sheep industry is concerned, I believe we will do more good by our endeavor to extend trade in other markets than the Northwest. While there may always, under present conditions, be a market for sheep in the West, our efforts might well be put forth in other ways. It might be well to consider the advisability of having a representative visit the Western States with the object of extending our business in that direction.

I believe we should also have printed matter and special information regarding our live stock industry placed in the hands of all our Dominion Trade Commissioners to foreign countries. There should be a free and full discussion as to how our trade in pure bred live stock can be extended. This will probably be brought out in a discussion of the subjects to be considered at the National Live Stock Convention.

Auction Sales of Pure Bred Stock.

At the annual meeting of the Live Stock Associations in 1900, it was decided to hold an auction sale of pure bred stock in the West at Guelph, and one in the East at Ottawa. The first annual sales were held in 1901. Sales were also held in 1902 and 1903 at the same points. As a matter of education alone, these sales have been very beneficial. They have demonstrated most conclusively the actual difference in the money value of any animal properly fitted for sale and one not in so good condition. The sales have also demonstrated that good stock in good condition will bring full value at these sales.

The auction sale system is steadily becoming more popular as a plan of marketing live stock. There is no reason why co-operation in selling and marketing should not have the same results applied to live stock as in the case of other commodities. Public sales will bring the buyer and seller closer together. A public sale of live stock draws attention to the animals in the district in which it is held. Nothing that the Northwest Territories could have done would have drawn the same attention to the pure bred live stock in the Territories as the public auction sale held in Calgary each spring. Every effort should be made to still further extend auction sales in Ontario.

Averages at Guelph and Ottawa Sales, 1901.

	No.	Total.	Average.
Shorthorns	152	$13,998.00	$92.09
Ayrshires	42	2,001.00	47.64
Guernsey Bull	1	35.00	35.00
Holsteins	7	291.50	41.64
Herefords	6	502.00	83.67
Galloway Bull	1	72.00	72.00
Polled Angus	5	303.00	60.60
Berkshires	6	73.00	12.17
Tamworths	9	102.00	11.33
Yorkshires	30	585.00	19.50
Total amount of sale		$17,962.50	

Averages at Guelph and Ottawa Sales, 1902.

Shorthorns	151	$14,466.00	$95.80
Ayrshires	21	728.00	34.66
Polled Angus	1	75.00	75.00
Holsteins	1	37.00	37.00
Jerseys	3	95.00	31.66
Guernseys	1	15.00	15.00
Tamworths	6	72.50	12.08
Berkshires	2	22.00	11.00
Yorkshires	2	30.00	15.00
Total amount of sales		$15,540.00	

Averages at Guelph and Ottawa Sales, 1903.

Shorthorns	99	$9,005.00	$90.96
Herefords	2	100.00	50.00
Ayrshires	1	37.00	37.00
Total amount of sales		$9,142.00	

In 1903 no females were sold.

Port Perry Yorkshire Swine Sale.

Highest price paid	$41.00
7 boars sold for $112.00; average	16.00
30 sows sold for $545.00; average	18.15
37 animals sold for $657.00; average	17.75

At a joint meeting of the Executive of the Cattle, Sheep and Swine Associations, it was decided that the auction sale system should be extended so as to encourage the holding of more auction sales throughout the Province. The plan suggested is that auction sales held under some organization, and held under rules laid down by the Associations and under certain restrictions, should receive a grant to assist in the work.

Proposed Rules.

In order to further assist in the promotion of the public sale system, it has been decided by the Live Stock Associations to assist in holding a number of auction sales throughout the Province. Any organization wishing to hold a sale under these rules must make application on the form which will be supplied by the Secretary of the Live Stock Associations, A. P. Westervelt, and must be approved by the joint Sale Committe of the Cattle, Sheep, and Swine Breeders' Associations. No assistance will be given to hold more than one public sale at the same place during any year.

(1) The number of animals to be sold at any sale will be decided by the Sale Committee.

(2) These sales are intended to assist the local district in which they are held. Persons residing within the local district wishing to enter animals are, therefore, to be given the preference to enter animals, if coming within the limit of the number of animals to be received from individuals, or of the limit of the total number to be sold. If, however, the full number is not offered locally, entries may be received from any portion of the Province, subject to the approval of the Committee. Persons entering from outside the local territory will be subject to the same individual limit as those within the local territory.

(3) All animals within the local district must be inspected by an inspector appointed by the local Committee before the entries are accepted. All animals will be subject to further inspection when brought to the sale building.

(4) Donations to be made will be paid out of grants received from the Ontario and Dominion Departments of Agriculture.

(5) The amount of assistance given to any sale will be decided by the joint Sale Committee when the application is received, and will be paid when the sale has been held, should the report show that the rules, conditions, etc., have been complied with.

(6) Catalogues will be published giving pedigrees and other particulars, and be placed in the hands of probable buyers.

(7) The Secretary of the Live Stock Associations will be a member of the Committee of Management of each sale held under these rules.

(8) There must be at least ten individuals entering stock.

(9) Anyone within territory prescribed will be allowed to make entries if stock is approved by inspector.

(10) Sales must be held under an organization approved by the Sale Committee of the Live Stock Associations.

(11) No assistance will be given to two sales within forty miles of each other during one year.

(12) A commission not to exceed 5 per cent. may be charged.

(13) A proper building must be supplied, well lighted, and with a water supply convenient.

(14) Application to hold sales under this arrangement must be made at least four months before date of sale.

The application must give :

1. Name of place.
2. Size of proposed sale building.
3. Particulars of organization under which sale will be held.
4. Number of animals it is desired to sell.
5. What breeds it is proposed to sell.
6. Agreements to comply with and accept rules laid down by Sale Committee.
7. Date proposed.

(15) After the sale is held the following report must be supplied :

a. Number of animals entered, giving particulars as to breed, etc.

b. Total amount of sale ; number of animals sold ; highest price ; lowest price ; average (giving each breed separately).

c. Number entered not sold. Reasons why not sold. Were any deposits not refunded ? Why ?

d. Amount spent in advertising.

e. Particulars as to advertising. Names of papers in which advertisements were placed. What other advertising was done?

f. Number of catalogues printed and how distributed.

g. Name of auctioneer. Amount of fees. Whether or not on percentage. Were services satisfactory ?

h. Number of contributors.

i. Largest number contributed by one individual.

j. Total receipts. Total expenditures.
k. Copy of rules and copy of catalogue.

Agricultural Gazette.

At the last annual meeting, the Executive of the Live Stock Associations was instructed to take up the matter of the publication of the Agricultural Gazette. At a meeting of the Executive it was decided to publish monthly a sixteen-page pamphlet in conjunction with the Farmers' Institute. Owing to the changes of Superintendent being made in that department, it was decided not to commence publication until this position had been permanently filled.

The object of an organ for the Live Stock Association is :

1. To keep before the public the work of the Associations.
2. To create more interest among the members in the work of the Associations.
3. To keep the members informed as to what is being done.
4. To assist in advertising the stock of the members of the Associations.

The Gazette will be published as soon as arrangements to do so can be arranged.

Railway Commission.

Under a revision of the Railway Act a Railway Commission has been appointed. Matters of interest to live stock breeders will come within the jurisdiction of the Board, such as drainage, farm crossings, fences, and cattle guards. They will have a general supervision of matters connected with train service and equipment. They also have authority to inspect all schedules, and supervise the whole question of tariffs, freight classification, and general provisions respecting carriage.

A committee should be appointed whose duty it will be to inquire into and obtain full information respecting all matters which might, with advantge to live stock breeders, be brought to the notice of the Commission.

Individual Cow Records.

A very instructive address on "Individual Cow Records, and How to Make Them" was given by Prof. Dean at the Winter Fair at Guelph. It is very important that every one engaged in the dairy business should see the necessity of keeping a record of the production of each individual cow in the herd. It has been suggested that something in the way of prizes or some other assistance in doing the work might induce owners of dairy herds to keep more exact records. It would be well to appoint a committee of the representatives of the dairy breeds to devise some plan for the encouragement of the keeping of records by the farmers engaged in the dairy business.

St. Louis Fair.

A full report on this subject will be made by F. W. Hodson, Live Stock Commissioner.

National Live Stock Association.

An Association comprising the representatives of Live Stock Associations throughout the Dominion is being organized by the Live Stock Commissioner. The first annual gathering will be held in Ottawa, March 7th to 12th, inclusive.

The following subjects will be discussed :

1. Should Canadian records of pure bred stock be made national in character and scope?

2. Should the Canadian Government be asked to take steps to regulate the further importation of horses, cattle, sheep, and swine into Canada ? (1) Grades and stockers. (2) Pure breds.

3. The possibilities and development of a live stock trade with the West Indies, Mexico, South American Republics and Newfoundland.

4. What relation should exist between Racing Associations and the National Association ?

5. Should stallions be registered and receive certificates from the National Association ?

6 Steps should be taken to regulate the manufacture and sale of woollen goods in Canada ?

7. Is it advisable to develop a dead meat trade with Great Britain ?

As to what delegates may be appointed to attend this convention, clause 3 of a memorandum received reads :

"The President and Vice-President, or the President and Secretary of each Live Stock Association in Canada, receiving aid from a Provincial Department of Agriculture, and having a membership of at least fifty members, and paying an annual fee of one dollar each.

All subjects on the programme which are of interest to our Associations should be carefully considered and discussed in order that delegates may be instructed as to the views of the Associations respecting these matters.

Winners of Specials Offered by the Dominion Swine Breeders' Association at Winnipeg and Brandon Fairs.

$84.00 was donated to the fair at Winnipeg and, $40.00 to the Brandon Exhibition.

Winnipeg Exhibition—Prizes, $7.00 for males and $7.00 for females in each class.

Berkshires—Jas. M. Ewens, Minnedosa, Man., "Emperor," 8796 ; R. J. Pritchard, Roland, Man., "York Lodge Matchless 17th," 11141.

Yorkshires—And. Graham, Pomeroy, Man., "Forest Home Favorite," 12055 ; And. Graham, Pomeroy, Man., "Sunnydale No. 12," 11182.

Tamworths—R. S. Preston, Pilot Mound, Man., "Honest Sandy," 2230 ; W. L. Trann, Crystal City, Man., "Lillian Russell," 2769.

Chester Whites—A. E. Thompson, Wakopa, Man., "Hillgrove Premier," 2786 ; A. E. Thompson, Wakopa, Man., "Linden Queen," 2785.

Poland Chinas—W. L. Trann, Crystal City, Man., "Gold Chief," 1753 ; W. L. Trann, Crystal City, Man., "Gold Belle," 1646.

Duroc Jerseys—W. M. Smith, Scotland, Ont., "Canadian Jack," 522 ; W. M. Smith, Scotland, Ont., "Annie," 520.

Brandon Exhibition—$10 for each class:

Berkshires—A. B. Potter, Montgomery, Assa., "Whitewood Queen," 10607.

Yorkshires—A. B. Potter, Montgomery, Ass., "Matilda," 9249.

Tamworths—W. L. Trann, Crystal City, Man., "Sarah Barnhardt," 2608.

Poland Chinas—W. L. Trann, Crystal City, Man., "Gold Belle," 1640.

Educational Work.

The educational work of the Association has been done through the Winter Fair at Guelph and the Eastern Ontario Live Stock and Poultry Show at Ottawa.

One noticeable feature regarding the last Winter Fair at Guelph was the great interest taken in the work by those not directly interested in live stock. This was indicated by the amount of space given to the report of the Fair by the daily papers, and also the very favorable comments made through the editorial columns.

The following table gives some information as to how the entries were divided in the different classes and the number of exhibitors in each class :

	No. entered.	No. of exhibitors.
Fat Cattle:		
Shorthorns	40	16
Herefords and Aberdeen Angus	11	4
Galloways and Devons	11	2
Grades	154	41
	216	63
Sheep:		
Cotswolds	56	8
Lincolns	26	3
Leicesters	44	5
Oxfords	52	4
Shropshires	64	5
Southdowns	98	5
Dorset Horns and Merinos	32	5
Hampshires and Suffolks	17	3
Grades	73	15
	462	53

	No. entered.	No. of exhibitors.
Swine:		
Berkshires	40	7
Yorkshires	50	9
Chester Whites	19	3
Poland Chinas	14	2
Essex	17	2
Tamworths	44	5
Duroc Jerseys	15	2
Grades	108	28
	307	58
Dairy:		
Shorthorns	10	5
Ayrshires	13	4
Holsteins	21	5
Grades	6	2
	50	16

Total Entries, Cattle, Sheep and Swine, 1,035.

Date.	No. of entries.	Entry fees.	Total paid in premiums.	Gate receipts.
1900	3,019	$1,782 85	$5,829 50	$1,147 70
1901	3,461	2,114 75	6,870 50	1,761 00
1902	3,945	2,118 00	7,750 00	1,860 45
1903	4,216	2,401 50	7,800 00	1,998 25

A report of the meetings, prize winners, etc., will be published in the annual report.

A full report of the Eastern Ontario Live Stock and Poultry Show, held during the week commencing February 7th of last year, was published in the Annual Report for 1902. The next show is advertised to be held at Ottawa, March 7th to 11th next.

The following figures will show the importance of the live stock industry in Ontario. The figures for Ontario and Manitoba are for 1902. The figures for the Territories, British Columbia, Nova Scotia, and Prince Edward Island are from the census returns of 1901:

	Ontario	Manitoba.	N. W. Territories.	Br. Columbia, P. E. Island. Nova Scotia.
Cattle	2,562,584	282,343	591,739	553,593
Sheep	1,715,513	20,518	154,152	444,140
Swine	1,684,635	95,598	73,926	134,831

One thing the breeders should do,—that is, to keep nothing but the best in their particular line of stock. The name "Ontario" in connection with live stock should stand for quality and excellence. Prices for pure bred stock have for some time been satisfactory. When the demand becomes less than the supply, or when there is an oversupply, then it is that quality will tell. A falling market is a discriminating market; then is the real test made of the stability of the live stock industry in any country. When that test comes, Ontario must not be found wanting.

A. P. WESTERVELT, Secretary.

Dominion Cattle Breeders' Association

ANNUAL MEETING.

The annual meeting of the Dominion Cattle Breeders' Association was held in the Palmer House, Toronto, on February 5th, 1904, 9.30 a.m., the President, Arthur Johnston, in the chair.

On motion the minutes of the last meeting were taken as read.

The annual report and financial statement of the Secretary-Treasurer were then presented, and on motion were received and adopted.

A short address was delivered by the President.

RESOLUTIONS.

"That the matter of a delegate or delegates to Winnipeg be left in the hands of the Executive of this Association." Carried.

Mr. Taylor said the report presented by the Secretary was a magnificent one, and he was very much pleased with it, and he thought it would be a good idea to have the Secretary go out to Winnipeg during the Exhibition.

Mr. Bowman also thought it would be a move in the right direction, so on motion it was resolved: "That A. P. Westervelt be requested, if necessary to join with Mr. Greig and possibly the Live Stock Commissioner, in maintaining a tent on the fair grounds at Winnipeg during the time of the Exhibition.

"That the delegates named by the various contributing associations compose the Directorate of this Association." Carried.

Mr. F. W. Hodson, Dominion Live Stock Commissioner, outlined the result of his official visit to St. Louis, and also explained to the breeders the exact condition of the regulations existing between the United States and Canada.

The following resolution was then unanimously passed: "That the Dominion Cattle Breeders' Association, in annual meeting assembled, endorse the action of our representative at the meeting held in the Rossin House, November 11th, 1903, and also the position taken by the Dominion Live Stock Commissioner in relation to the St. Louis Exposition." Carried.

The scheme for forming a National Live Stock Association was then explained, and on motion it was resolved: "That the proposition of the Live Stock Commissioner, Mr. F. W. Hodson, in forming a National Live Stock Association, to be held in March, be endorsed by this annual meeting of the Cattle Breeders' Association of Canada."

The following delegates were appointed to attend the convention: Arthur Johnston, Glenwood; A. P. Westervelt, Toronto; Chas. Calder, Brooklin; Wm. H. Taylor, M.P.P., Parkhill.

"That the Executive be appointed delegates from this Association—with power to add to their number—to co-operate with other associations in presenting before the Railway Commission a statement in support of the demand for reduced freight and passenger rates; and that the Secretary be requested to send out blanks to the members in order to get all the information possible in connection with this matter." Carried.

Mr. Hodson said there was a clause in reference to individual cow records in the Secretary's report that should be carried out, and asked to have a committee appointed and consult with him, and he would get the money to carry out the plan.

On motion it was resolved: "That this matter be left in the hands of the Executive Committee and Professor Dean, with instructions that they consult the directors of the various breeds."

"That the selection of judges for the Winter Fair Fat Stock Show be left in the hands of the Executive Committee of the Winter Fair Board." Carried.

The members complained that there was insufficient light and platform accommodation at the Toronto Industrial, and on motion it was resolved: "That the Executive Committee be instructed to interview the Toronto Exhibition directors and Grand Trunk authorities with a view to obtaining better platform accommodation and better light.

The meeting then adjourned.

OFFICERS FOR 1904.

President.....ARTHUR JOHNSTON.....Greenwood.
Vice-President.....A. W. SMITH.....Maple Lodge
Secretary-Treasurer.....A. P. WESTERVELT.....Toronto.

Vice-Presidents (Representing the different Provinces).

Ontario.....JAS. M. GARDHOUSE, Weston.
Northwest Territories.....C. W. PETERSON, Calgary, Alta.
Quebec.....R. NESS, Howick, Que.
Maritime Provinces.....E. B. ELDERKIN, Amherst, N.S.
British Columbia.....G. H. HADWEN, Duncan's, B.C.

Directors:

Shorthorns: JOHN ISAAC, Markham; T. E. ROBSON, Ilderton.
Herefords: A. STONE, Guelph; W. K. GOODING, Guelph.
Ayrshires: H. WADE, Toronto; W. W. BALLANTYNE, Stratford.
Holstein-Fresian: G. W. CLEMONS, St. George; JAS. RETTIE, Norwich.
Aberdeen-Angus: JAMES BOWMAN, Guelph.
Galloways: ROBERT SHAW, Brantford; D. MCCRAE, Guelph.
Jerseys: GEO. DAVIES, Todmorden; T. PORTER, Mt. Dennis.
Ontario Agricultural College: G. E. DAY, Guelph.
General Director: WM. SMITH, Columbus.
Dominion Live Stock Commissioner, F. W. HODSON, Ottawa.

Auditor—J. M. DUFF, Guelph.

Delegates to Fair Boards:

Toronto.....J. A. MCGILLIVRAY, Uxbridge.
A. P. WESTERVELT, Toronto.
Ottawa.....N. F. WILSON, Cumberland.
F. W. HODSON, Ottawa.
London.....T. E. ROBSON, Ilderton.
WM. H. TAYLOR, Parkhill.
Brantford.....G. W. CLEMONS, St. George.
J. R. ALEXANDER, Brantford.
Provincial Winter Fair.....G. W. CLEMONS, St. George.
J. T. GIBSON, Denfield.
JOHN BRIGHT, Myrtle.
Eastern Exhibition Committee.....ARTHUR JOHNSTON, Greenwood.
J. H. GRISDALE, Ottawa.
N. F. WILSON, Cumberland.
Sale Committee.....ARTHUR JOHNSTON, Greenwood.
A. W. SMITH, Maple Lodge.
A. P. WESTERVELT, Toronto.

FINANCIAL STATEMENT OF THE DOMINION CATTLE BREEDERS' ASSOCIATION FOR THE YEAR ENDING DECEMBER 31, 1903.

Receipts.

Members' fees	$ 919 00	
Legislative grant	2,500 00	
		$3,419 00

Expenditures.

Balance due Treasurer	$ 371 58	
Cash paid for prizes	2,136 00	
Officers' salaries	350 00	
Directors' fees and expenses	298 81	
Postage and Stationery	109 83	
Printing	38 59	
Typewriting and office expenses	426 29	
Telegraph, telephone, express, etc	33 23	
Auditor	5 00	
Miscellaneous items	9 91	
To balance due Treasurer		250 24
	$3,669 24	$3,669 24

Audited and found correct.

J. M. Duff, Auditor.

Arthur Johnston, President.

A. P. Westervelt, Treasurer.

MEMBERS OF THE DOMINION CATTLE BREEDERS' ASSOCIATION.

Name and Address.	Breed.
Acres, J. G., Vernon	Holstein-Friesians
Adams, Edward, Carlton West	Holstein-Friesians
Armstrong, Wm., Locust Hill.	Holstein-Friesians
Ashby, Antonie, Marieville, Que	Holstein-Friesians
Anderson, Thos., Lyn	Holstein-Friesians
Armstrong, M., Tillsonburg	Holstein-Friesians
Arnold, J. B., Easton's Corners	Holstein-Friesians
Atkinson, A. B., Steveston, B. C.	Holstein-Friesians
Bowman, Jas., Guelph	Aberdeen-Angus
Burt, J. W., Coningsby	Aberdeen-Angus
Bell, J. J., Waverly	Aberdeen-Angus
Brown, John, Galt	Herefords
Bailey, W. J., Nober	Holstein-Friesians
Barber, Frank, Villa Nova	Holstein-Friesians
Bedgood, Thos. E., Crumlin	Holstein-Friesians
Bell, W. T., Willetsholme	Holstein-Friesians
Bonsall, H., Chemainus, B.C.	Holstein-Friesians
Brown, F. L., Kelso, Que	Holstein-Friesians
Buchanan, John, Elia	Holstein-Friesians
Burt, D., St. George	Holstein-Friesians
Baird, Chas., Motherwell	Holstein-Friesians
Beale, T. R., Athens	Holstein-Friesians
Beemer, John, St. George	Holstein-Friesians
Bollert, H., Cassel	Holstein-Friesians
Brown, D. H., Beith, Que	Holstein-Friesians
Brown, W. W., Lyn	Holstein-Friesians
Bullard, B., Plum Hollow	Holstein-Friesians
Cassidy, C. V., Ailsa Craig	Shorthorn Grades.
Charlton, E. W., Duncrief	
Cameron, J. W., Perth	Holstein-Friesians
Campbell, Robert, Rosemeath.	Holstein-Friesians
Caskey, J. A., Madoc	Holstein-Friesians
Clarkson, John, Summerville	Holstein-Friesians
Cohoe, J. W., New Durham	Holstein-Friesians
Conner, John, Gananoque Jct.	Holstein-Friesians
Craik, Robert, Montreal, Que.	Holstein-Friesians
Curtis, W. J., Willetsholme	Holstein-Friesians
Campbell, Daniel, Vernon	Holstein-Friesians
Carlaw, T. B., Warkworth	Holstein-Friesians
Collyer, F. J., Welwin, Assa	Aberdeen-Angus
Charlton, T. W., St. George	
Clemons, G. W., St. George	Holstein-Friesians
Connor, Holland, Atkinson	Holstein-Friesians
Countryman, G. W., Tweed	Holstein-Friesians
Curtis, Alfred, Willetsholme	Holstein-Friesians
Davis, Geo., Alton	Aberdeen-Angus
Dawson, Robert P., Guelph	Shorthorns
Dickieson, John, Eramosa	Shorthorns
Douglas, Jas., Caledonia	Shorthorns
Dougherty, J. W., New Durham	Holstein-Friesians
Duncan, W. A., Emery	Holstein-Friesians
Dundon, John, St. Roch, Que.	Holstein-Friesians
Eldridge, John, Hepworth Station	Aberdeen-Angus
Elliott, John, Marden	Shorthorns
Edwards, John, Algonquin	Holstein-Friesians
Elie, Jos., La Baie, Que	Holstein-Friesians
Ede, P. D., Oxford Centre	Holstein-Friesians
Ellis, Wm. G., Bedford Park.	Holstein-Friesians
Fasken, Wm. J., Ponsonby	
Featherston, Jos. & Sons, Streetsville	Shorthorns
Fargey, Peter, Belleville	Holstein-Friesians
Farmer, F. F., Three Rivers, Que	Holstein-Friesians
Ferland, Jos. B., Three Rivers, Que	Holstein-Friesians
Fletcher, Jos., Oxford Mills	Holstein-Friesians
Foster, A. S., Halloway	Holstein-Friesians
Foxton, Richard, Brockville	Holstein-Friesians
Graham, D. A., Ivan	Shorthorns
George, H. E., Crampton	Holstein-Friesians
Gies, C. R., Heidelburg	Holstein-Friesians
Giles, C. H., Fredericton, N.B.	Holstein-Friesians
Gilroy, G. A., Glen Buell	Holstein-Friesians
George, E. D., Putnam	Holstein-Friesians
Gibson, T. M., Newcastle	Holstein-Friesians
Gifford, A., Meaford	Holstein-Friesians
Gilroy, C. J., Glen Buell	Holstein-Friesians
Glass, Geo. O., Sweetsburg, Que	Holstein-Friesians
Glazier, D. N., Brockville	Holstein-Friesians

MEMBERS OF DOMINION CATTLE BREEDERS' ASSOCIATION.—Continued.

Name and Address.	Breed.
Hall, W., Washington, Ont....	Aberdeen-Angus
Hales, Alf., Guelph.....	Shorthorns
Harding, R. H., Thorndale....	Shorthorns
Henry, P. J., Ridgetown.....	Shorthorns
Hill, David, Cumnock..... ..	Shorthorns
Hood, G. B., Guelph..... ...	Grades
Houston, John, Chatham.....	Shorthorns
Hallman, A. C., Breslau....	Holstein-Friesians
Hanton, Albert R., Frankville	Holstein-Friesians
Harding, Jas., Graham's Road, P.E.I.....	Holstein-Friesians
Harrison, Jas. E., Kincardine	Holstein-Friesians
Hartley, Henry, Norwich.....	Holstein-Friesians
Hartley, Miles, Norwich.... .	Holstein-Friesians
Hartley, Thos., Downsview..	Holstein-Friesians
Hartley, W. A., New Durham	Holstein-Friesians
Hawse, W. H., Athens.....	Holstein-Friesians
Herrick, J. E. K., Abbotsford, Que.....	Holstein-Friesians
Herriott, Jas., Souris, Man....	Holstein-Friesians
Hicks, R. F., Newton Brook..	Holstein-Friesians
Hewitt, Isaac, Plattsville.....	Holstein-Friesians
Holgate, John A., Foxborough	Holstein-Friesians
Honey, R., Brickley..... ...	Holstein-Friesians
Hoover, A., Jr., Woodbridge..	Holstein-Friesians
Hopps, Benj., Campbellford..	Holstein-Friesians
Hopps, John, Campbellford....	Holstein-Friesians
Hoskin, Thomas, The Gully...	Holstein-Friesians
Howe, F., Crampton..... ...	Holstein-Friesians
Hubbs, Lewis P., Hillier.....	Holstein-Friesians
Hunter, Wm., Langley, B.C...	Holstein-Friesians
Johnson, J. W., Sylvan.....	Holstein-Friesians
Johnson, Wm., Delta..... ...	Holstein-Friesians
Johnston, Henry, Frankville..	Holstein-Friesians
Johnston, Wesley, Chesterville	Holstein-Friesians
Jones, D., Jr., Villa Nova....	Holstein-Friesians
Kelly, Arthur, Kelvin..... ...	Holstein-Friesians
Kennedy, A., Ayr.....	Holstein-Friesians
Kincaid, C. A., Barriefield....	Holstein-Friesians
Latimer, J. A., Woodstock..	Shorthorns
Lang, Thos., Eburne, B.C.....	Holstein-Friesians
Lee, J. W., Simcoe.....	Holstein-Friesians
Lee, Patrick, Kilbain, Que....	Holstein-Friesians
Logan, H. Lorne, Amherst Pt., N.S.....	Holstein-Friesians
Logan, Stanley A., Amherst Pt., N.S.....	Holstein-Friesians
McKinnon, A., Hillsburg..... .	Aberdeen-Angus
Murdock, R., Gordonville.....	Aberdeen-Angus
MacIntyre, Archie, Manilla...	Shorthorns
Murdoch, F., Ponsonby	Shorthorns
McDairmid, D. R., Ridgetown.	Shorthorns
McArthur, D., Ailsa Craig....	Grades
McMillan, T., Seaforth.....	Shorthorns
McGeachy, D. & R., Elder's Mills.....	Shorthorns
MacIntosh, John, Gourock....	Grade Shorthorns
McDougall, A., Guelph..... ..	Polled Angus
Maclin, C. W., Centreton.....	Holstein-Friesians
Maclin, S., Streetsville.....	Holstein-Friesians
Mallory, B., Frankford..... ..	Holstein-Friesians
Mallory, J. M., Frankford.....	Holstein-Friesians
Manhard, G. H., Fairfield East.....	Holstein-Friesians
Martin, R. B., Elmira..... ...	Holstein-Friesians
McCrae, J. L., Brockville....	Holstein-Friesians
McCuaig, M., Vankleek Hill...	Holstein-Friesians
McDonald, Allen, Ormond.....	Holstein-Friesians
McDonald, Peter A., Ormond.	Holstein-Friesians
McGregor, John, Constance...	Holstein-Friesians
McLean, J. H., Inkerman....	Holstein-Friesians
McMillan, D. J., Laggan.....	Holstein-Friesians
McNeil, C. A., Gananoque.....	Holstein-Friesians
Mittlefehldt, A., Elcho..... ..	Holstein-Friesians
Montle, J. M. Stanstead, Que.	Holstein-Friesians
Montmorency, Geo,. Beaconsfield.....	Holstein-Friesians
Moorhead, Jas. G., Ventnor..	Holstein-Friesians
Newlands, Wm., Eburne, B.C.	Holstein-Friesians
O'Mohney, Daniel, Renton.. .	Holstein-Friesians
Ontario Agrl. College, Guelph	Holstein-Friesians
Poole, Wm. Newboro..... ...	Shorthorns and Grades
Palmer, B. J., New Durham...	Holstein-Friesians
Pannabecker, E., Hespeler....	Holstein-Friesians
Patton, J. H., Paris	Holstein-Friesians
Patterson, M., Almonte.....	Holstein-Friesians
Pettes, Jas. C., West Brome, Que.....	Holstein-Friesians
Pickering, Jno., Frelighsburg, Que.....	Holstein-Friesians
Post, H. H., Wellington.....	Holstein-Friesians
Potter, A. B., Montgomery, Assa.....	Holstein-Friesians
Poole, Sam'l, Norwich..... ..	Holstein-Friesians
Pound, Wm., Bayham..... ...	Holstein-Friesians
Purse, J. W., Herdman, Que..	Holstein-Friesians
Reid, W. H., Kingston..... ..	Shorthorns
Rudd, W. J., Eden Mills..... .	Devons
Robinson, T., Dunsford..... .	Aberdeen-Angus
Reece, J., Chilliwack, B.C.....	Holstein-Friesians
Reesor, F. E. N., Locust Hill.	Holstein-Friesians
Reinke, Fred., Southcoat.. ..	Holstein-Friesians
Rettie, Jas., Norwich..	Holstein-Friesians
Rice, Alf., Curries.....	Holstein-Friesians
Rice, Geo., Curries.....	Holstein-Friesians
Richardson, J. A., South March.....	Holstein-Friesians
Richardson, J. W., Caledonia.	Holstein-Friesians
Richardson, Matt., Caledonia.	Holstein-Friesians
Rife, David, Hespeler..... ...	Holstein-Friesians
Ripley, H., Elgin.....	Holstein-Friesians
Rivers, Walburn, Foldens.....	Holstein-Friesians
Robertson, J. W., Vankleek Hill.....	Holstein-Friesians
Rutherford, J.C., Kemptville...	Holstein-Friesians
Sharp, Jas., Rockside	Aberdeen-Angus
Stewart, Arch., Ailsa Craig..	Grades
Stewart, Duncan, Weston.....	Grades
Smith, A. W., Maple Lodge..	Shorthorns
Snell, Geo., Yeovil....	Shorthorns
Smith, J. J., Enniskillen.....	Shorthorns
Stewart, P., Everton..... .	Shorthorns
Silox, Edgar, Sheddon..	Jerseys
Stone Stock Co., F. W., Guelph...	Herefords
Scott, John W., Austin, Minn.	Shorthorns
Scott, Jas., Galt....	Jerseys and Grade
Scott, Jas., Aberfoyle..... ...	Shorthorn Grades
Stone, Jas., Saintfield..... ...	
Sangster, N., Ormstown, Que.	Holstein-Friesians
Scatcherd, Edwin, Wyton ..	Holstein-Friesians
Scott, Robt., Epsom..... ...	Holstein-Friesians
Schell, Walter S., Woodstock	Holstein-Friesians
Shunk, S., Edgely.....	Holstein-Friesians
Smith, S. E., Dundas.....	Holstein-Friesians
Sonley, T. H., Manilla..... .	Holstein-Friesians
Stauffer, Francis, Washington	Holstein-Friesians
Stevenson, R. S., Ancaster....	Holstein-Friesians
Steves, J. M., Steveston, B.C.	Holstein-Friesians
Stewart, Hugh, Ormond.... .	Holstein-Friesians
Stewart, John, Delta..... ...	Holstein-Friesians
Sturgis, D. E., Tillsonburg.	Holstein-Friesians
Suhring, Wm., Sebringville...	Holstein-Friesians
Sweet, Ogden, North Sutton, Que....	Holstein-Friesians
Templer, Wm., Jerseyville....	Shorthorns
Thomson, A. J., Hillsburg....	Aberdeen-Angus
Tannahill, John, White's Stn., Que....	Holstein-Friesians
Telfer, Thos. G., Ingersoll....	Holstein-Friesians
Thompson, P., Hillsburg.....	Aberdeen-Angus
Wilson, Jas. & Son, Fergus..	
Wilson, W. C. & Sons, Hawkestone	Shorthorns
Wolfe, M., Hespler.....	
Wagler, Christian, Baden.....	Holstein-Friesians
Walker, A. T., Beaconsfield..	Holstein-Friesians
Walker, R. W., Utica....	Holstein-Friesians
Welsh, Henry, Weston..... .	Holstein-Friesians
Willis, R., Jr., Glen Meyer.. .	Holstein-Friesians
Wilson, Howard, Russell.....	Holstein-Friesians
Wyckoff, I. G., Tyrrell... ...	Holstein-Friesians
Young, S., Guelph.....	Polled Angus and Shorthorns
Young, R. & Sons, Ospringe..	

Dominion Sheep Breeders' Association

ANNUAL MEETING.

The annual meeting of the Dominion Sheep Breeders' Association was held in the Palmer House, Toronto, February 5th, 1903, 3 p.m., the President, R. H. Harding, in the chair. The minutes of the last annual meeting were accepted as read.

PRESIDENT'S ADDRESS.

By R. H. Harding, Thorndale, Ont.

We have reason in some cases to congratulate ourselves in the sheep business, although not to the same extent, perhaps, as in some of the other lines, but I do not think—taking the better class of sheep—that there was ever a better market for them than there is to-day. Of course, for the surplus stock of this country we are to some extent blocked; still, we think there is room for a great many more to be in the sheep business than at present. I notice there are different sheep men going out of the business, and it is principally on account of the dog nuisance. I think if we could get that remedied we could get a great many more sheep on the farms than at present.

You will notice by the report that we are still owing to the Treasurer, although we have done very well during the past year, as we have removed part of that liability, and I would like to see it still further removed. I will leave it in your hands to say whether we shall ask for an increase in grant or what plan you would take in getting it removed.

I am sure you will all agree with me in reference to the St. Louis Fair, that while as sheep breeders we regret there is not to be a national exhibit from this country over there, we have just reason for taking the stand we have taken in regard to the national exhibit. That, of course, will not prevent anyone making an individual exhibit and winning a good share of the prizes.

I also take the opportunity of congratulating the sheep exhibitors who showed at the International last year, as fully two-thirds of the championship prizes came to Canada. This, I am sure, is worthy of our congratulations.

There is another matter, to my mind, of great importance, and that is in connection with the transportation question. I think it is the proper time for this Association to take a stand and appoint delegates to look up the grievances in connection with the sheep department in transportation, and be ready to bring that before the Transportation Commission.

I thank you for the way you have treated me during the two years I have been in the chair. I have had nothing but the greatest of assistance from the members and the Board, and I now expect to hand the chair over to a better and more capable man.

The report of the Secretary-Treasurer was then presented, and on motion was adopted.

EXPERT JUDGES.

The following expert judges were then nominated:

Cotswold: John Rawlings, Ravenswood; William Thompson, Uxbridge; Val. Ficht, Oriel; Jas. Hume, Arkell; W. G. Laidlaw, Wilton Grove; R. P. Snell, Snelgrove; Wm. Linton, Aurora; S. J. yons, Norval; Jas. Russell, Richmond Hill; J. C. Snell, London; F. Bonnycastle, Campbellford; John Park, Burgessville; Hardy Shore, Glanworth; A. J. Watson, Castlederg; Prof. G. E. Day, Guelph; John V. Snell, Snelgrove. Judges nominated: Toronto—Robert Miller, Stouffville; Jas. Hume, Arkell. London—Val. Fitch, Oriel; John V. Snell, Snelgrove. Ottawa—Val. Ficht, Oriel; A. Thompson, Uxbridge. Chicago—Prof. Curtiss, Ames, Ia., U.S; Prof Day, Guelph; R. P. Snell, Snelgrove.

Leicesters: R. J. Garbutt, Belleville; Jas. Fennell, Bradford; H. B. Jeffs, Bond Head; A. E. Archer, Warwick; Geo. Whitelaw, Guelph; Hardy Shore, Glanworth; Abraham Easton, Appleby; E. Wood, Appleby; Wm. Parkinson, Eramosa; E. Parkinson, Eramosa; John Orr, Galt; Wm. McIntosh, Burgoyne; Thos. Currelly, Fullarton, R. Eastwood, Mimico; John Kelly, Shakespeare; And. Thompson, Fergus; J. K. Campbell, Palmerston; J. C. Snell, London; G. B. Armstrong, Teeswater; John Gibson, Denfield; C. E. Wood, Freeman; Jos. Gaunt, St. Helen's; J. M. Gardhouse, Weston; And. Whitelaw, Guelph; Wm. Whitelaw, Guelph; R. C. Martin, Marysville; Alex. Smith, Maple Lodge; H. G. Arnold, Maidstone; Prof. Craig, Ames, Ia.; John Marshall, Cass City, Mich.; J. W. Murphy, Cass City, Mich.; Prof. Curtiss, Ames, Ia., U.S.; Geo. Penhale, Exeter; Jas. Snell, Clinton; Prof. Day, Guelph; M. Kennedy, Northwood; D. Lillico, Ayr; Jas. Douglas, Caledonia; Frank Shore, White Oak; John Gardhouse, Highfield; William Beattie, Wilton Grove. Judges nominated: Toronto—C. E. Wood, Freeman; reserve, Robert Garbutt, Belleville. London Prof. G. E. Day, Guelph; reserve, Frank Shore, White Oak. Ottawa—Prof. Day. Brantford Wm. Whitelaw.

Dorsets: John Kelly, Shakespeare; Robert Miller, Stouffville; J. M. Gardhouse, Weston; John Campbell, Fairview; J. G. Hanmer, Mount Vernon; Prof. Curtiss, Ames, Ia.; Thos. W. Hector, Springfield-on-the-Credit; G. P. Everett, Mt. Vernon; John A. McGillivray, Uxbridge; H. N. Gibson, Delaware; E. O. Denton, Somerset, N.Y.; G. McKerrow, Sussex, Wis.; John Hunter, Wyoming; Herbert Hanmer, Burford; A. Danks, Allamuchy, N.J.; John Jackson, Abingdon; Fred. Silversides, Uxbridge; R. H. Harding, Thorndale. Judges nominated: Toronto—John Kelly, Shakespeare; John Jackson, Abingdon. London—J. G. Hanmer, Mt. Vernon; J. M. Gardhouse, Weston, reserve.

Southdowns: John Jackson, Abingdon; Wm. Martin, Binbrook; W. H. Beattie, Wilton Grove; W. H. Gibson, Beaconsfield; N. H. Gibson, Delaware; R. J. Douglas, Galt; A. Simpson, Blackwater; H. B. Jeffs, Bond Head; Geo. Telfer, Paris; J. G. Hanmer, Mt. Vernon; J. Smith, Mt. Vernon; Jas. Scott, Aberfoyle; J. C. Duncan, Lewiston, N.Y.; Col. R. McEwen, Byron.

Oxfords: Prof. G. E. Day, Guelph; John Harcourt, St. Ann's; Smith Evans, Greenock; Jas. Tolton, Walkerton; R. J. Hine, Dutton; Kenneth Finlayson, Campbellton; Henry Arkell, Arkell; William Dickson, Mildmay; Peter Arkell, Teeswater; J. H. Jull, Mount Vernon; W. H. Arkell, Teeswater; John E. Cousins, Harriston; Arch. McKenzie, Corwhin; R. E. Birdsall, Birdsall; Geo. McKerrow, Sussex, Wis.; W. A. Shafer, Middleton, Ohio; J. V. Cooper, Picton; Wm. Newman, Cherry Valley; Wm. Arkell Teeswater; Jas. J. Tolton, Walkerton; L. Parkinson, Greenock; A. Elliott, Pond Mills; D. Brown, Iona; H. N. Gibson, Delaware; W. Lee, Simcoe; Prof. Craig and Prof. Curtiss, Ames, Ia. Judges nominated: Toronto—John Harcourt, St. Ann's; Jas. Tolton, Walkerton. London—W. H. Arkell, Teeswater; J. L. Tolton, Walkerton.

Hampshires and Suffolks: R. Gibson, Delaware; H. Arkell, Arkell; Prof. J. A. Craig, Ames, Ia.; W. H. Beattie, Wilton Grove; Jas. Bowman, Guelph; Prof. Ken-

ley, Columbus, Ohio; W. R. Bowman, Mount Forest; John Kelly, Shakespeare; Prof. G. E. Day, Guelph. Judges nominated: Toronto—H. N. Gibson, Delaware; Henry Arkell, Arkell, reserve. London—W. H. Beattie, Wilton Grove; R. Gibson, Delaware, reserve.

Lincolns: J. T. Gibson, Denfield; J. H. Patrick, Ilderton; Capt. T. E. Robson, Ilderton; R. W. Stevens, Lambeth; Graham Walker, Ilderton; William Oliver, Avonbank; E. Parkinson, Eramosa; J. H. Neil, Lucan; Wm. Mitchell, Glencoe; A. W. Smith, Maple Lodge; J. M. Gardhouse, Weston; J. Snell, Clinton; Hardy Shore, White Oak; Geo. Weeks, Glanworth.

Shropshires: G. P. Everett, Mount Vernon; J. Consworth, Paris; W. H. Beattie, Wilton Grove; R. Miller, Stouffville; J. Hanmer, Burford; J. Campbell, Woodville; D. G. Hanmer, Burford; M. Levering, Lafayette, Ind; A. Elliott, Galt; J. Dickin, Milton West; J. S. Thompson, Cass City, Ind.; Geo. Allen, Allerton, Ill.; W. G. Pettit, Freeman; D. J. Campbell, Woodville; Chas. Calder, Brooklin; H. N. Gibson, Delaware; Geo. Hindmarsh, Ailsa Craig; C. W. Gurney, Paris; W. E. Wright, Glanworth; J. Miller, Brougham; H. Hanmer, Burford; Prof. Curtiss, Ames, Ia.; J. G. Duncan, Lewiston, N.Y.; G. McKerrow, Sussex, Wis.; Prof. Day, Guelph; Arthur Barnett, Brooklin; Geo. L. Telfer, Paris; A. W. Smith, Maple Lodge; J. Shields, Caistorville; Geo. Crawford, Minesing. Judges nominated: Toronto Fair—J. C. Duncan, Lewiston, N.Y., U.S.; reserve, W. H. Beattie, Wilton Grove. London—W. H. Beattie, Wilton Grove. Ottawa—D. G. Hanmer, Mount Vernon. Winter Fair—J. C. Duncan, Lewiston, N.Y.; Robert Miller, Stouffville, reserve.

RESOLUTIONS.

"That the list of expert judges as read be adopted by this Association." Carried.

"That in addition to the recommendation from the Shropshire Association of an expert judge on Shropshires at Toronto that this Association urge upon the Toronto Fair Board that it is the wish of this Association to have Mr. Duncan appointed." Carried.

"That a director for Merinos be left off." Carried.

Mr. Lloyd Jones stated that the Sheep Building at London was in bad condition.

Mr. A. W. Smith stated the treatment of the sheep exhibitors was absurd. He had taken the matter up with the Board of Directors, and had succeeded in getting some little improvement, with promises of further improvements in the future. The atmosphere in the building was simply vile, and he had told them they could not afford to lose a sheep a month, much less one a day.

Mr. R. H. Harding concurred with Mr. Smith in his statements, and the following Committee was then appointed to draft a resolution as given below:

Committee—F. W. Hodson, A. W. Smith, and J. Lloyd-Jones.

"We, the members of the Sheep Breeders' Association, in annual meeting assembled, desire to call the attention of the President and Directors of the London Industrial Exhibition Association to the necessity of better ventilation in the sheep pens on the grounds of the above-named Exhibition Association, and to intimate to the management that, if reasonable improvements are not made before another Exhibition, we would recommend our members to refuse to exhibit sheep at London."

Mr. F. W. Hodson, Dominion Live Stock Commissioner, outlined the result of his official visit to St. Louis, and also explained to the breeders the exact condition of the regulations existing between the United States and Canada, and produced letters from the United States Department of Agriculture substantiating same.

ST. LOUIS EXPOSITION.

On motion the following resolution was adopted: "That the Dominion Sheep Breeders' Association, in annual convention assembled, endorse the action of our representatives at the meeting held in the Rossin House, November 11th, 1903; and also the position taken by the Dominion Live Stock Commissioner in relation to the St. Louis Exposition." Carried.

The plan for forming a National Live Stock Association was also outlined by the Commissioner, and on motion it was resolved:

"That the Dominion Sheep Breeders' Association, in annual convention, consider it desirable to establish a National Live Stock Association, and that the following delegates be the representatives from this Association:

Delegates: R. H. Harding, Thorndale; J. M. Gardhouse, Weston; A. P. Westervelt, Toronto.

The matter of freight and passenger rates was then discussed, and the following resolution passed:

"That delegates be appointed from this Association to co-operate with the Farmers' Association and other breeders' organizations in presenting before the Railway Commission a statement in support of the demand for reduced freight and passenger rates." Carried. Delegates: R. H. Harding, J. M. Gardhouse, and A. P. Westervelt.

A petition regarding the annual meeting being held at Guelph was read, and on motion it was resolved:

"That it is not expedient to hold the annual meeting of the Sheep Breeders' Association during the Winter Fair in Guelph, as it is impossible to get sufficient time to allot to these meetings without interfering with the practical work of the fair, for which the exhibition is held."

GENERAL DISCUSSION ON SHEEP INTERESTS.

Mr. A. W. Smith: Whenever any farmer considers the profit from raising sheep he will come to the conclusion that there is as much profit as there is in any other industry in the live stock business. Independent of the wool, which is considered with the profits of sheep raising, the sheep are equal to any other kind of live stock. We can produce mutton at a lower cost per pound than any other class of meat. We produce it with less labor and less food per pound than any other class of animals.

Arthur Johnston: In the first place, you will know we have never been a mutton-eating people in this country. I think it may be fairly conceded this is the case, and while we have never been a mutton-eating people, I think we are eating less than before. I know in England and Scotland there is not a pound of mutton eaten now where there were ten pounds eaten twenty-five years ago, and as to Australia, their sheep are raised entirely for wool, while the United States are not a mutton-eating people.

Mr. Smith: They are consuming more now than before.

Mr. Hodson: Twenty-five or thirty years ago nobody would take pork but farmers, but to-day the city people are eating pork and the farmers are not; although I do not think they are eating as much as they did two years ago, as you do not find breakfast bacon on the bill of fare in the large hotels to the same extent that you did a year or two ago.

Mr. Tyson: I remember I went out a few years ago and bought lambs at from $1 to $2 apiece. Now I am in the same business, and they cost me $4 apiece. There is no doubt about it lamb is the most expensive meat put on the market. You pay five and a half cents per pound live weight, and they only dress out about fifty per cent. And in the case of hogs, you pay five and a half, and they dress out about seventy-five per cent. You take a lamb about 140 pounds to dress about 77 pounds, it is too fat; that is too heavy for the retail trade. They are all right to export to the Old Country or New York. Lambs that weigh about 100 pounds apiece are the best for the trade.

F. W. Hodson: How old should they be for 100 pounds?

Mr. Tyson: Yearlings, probably. I prefer them as young as possible at 100 pounds. There is a point to be met here. Supposing I buy three lambs, and they weigh 300 pounds. I have three skins at $1 apiece. Supposing I buy two lambs at 150 pounds apiece; there are only two skins off them, and we only get $1 apiece, so you see we like the lighter sheep.

The demand in all lines is for not too fat mutton sheep. Really fat mutton is only worth three cents per pound.

Arthur Johnston: I can illustrate by incidents under my own observations. I was in England in 1875 buying Cotswold sheep, and when I was at Gillett's a ram died, or rather they had to kill him. It was very very excellent yearling lamb, and it was a nice carcass, and I observed very carefully how rapidly they skinned him, and had him off the same evening to London. I said to Mr. Gillett: "What will a sheep like that bring?" He said: "We will see in the morning." That sheep weighed about three hundred pounds, and he got six pounds six shillings; that was in 1875. Our sheep began to pour in there, and I happened to be there ten years afterwards, and a similar misfortune befell one of his sheep, and they had it dressed and sent into the market, and I asked what would the carcass bring now, and he said we would see in the morning, and the price of that sheep was only one pound six shillings.

Mr. Smith: I was in the carcass room in Chicago at the International, and the manager of that department in one of the large slaughtering establishments there was with me. They were looking at a carcass, and I said to him that it seemed rather peculiar that usually a cross-bred or a grade takes the first prize or championship. He noticed it was usually the case. He said they got better results from cross-breds than from pure-bred animals.

R. H. Harding: The morning of the combination sale in Hamilton a six-weeks' lamb which weighed 51 pounds sold for sixteen cents per pound live weight.

Mr. Hodson: Tell us how a hot-house lamb will pay you.

Mr. Tyson: Well, they would pay much better in a larger city than Guelph. I could only handle a small number in a city the size of Guelph.

Mr. Hodson: How large a demand is there for them?

Mr. Tyson: There is a much larger demand than can be supplied.

Mr. Hodson: Mr. Harding says a lamb which weighed 51 pounds sold for sixteen cents per pound.

Mr. Tyson: I have paid six and eight dollars for lambs at Easter, and often pay ten cents per pound for them until May.

Mr. Hodson: And how heavy would you want them to be up till May?

Mr. Tyson: Forty to fifty pounds live weight.

Wm. Linton: I have sold Cotswold lambs at $7 apiece in March.

Mr. Hodson: How old would they be?

Mr. Linton: They would be a month or six weeks old.

Mr. Hodson: Do you raise more than one crop of lambs a year?

Mr. Tyson: Not unless a ewe loses her lambs.

R. H. Harding: I would raise three crops in two years. I would use the off season to replenish the flock. I think a man could make quite a success of the Dorsets along that line. If I had not drifted into the show business I think I would have been into that before now.

The meeting then adjourned.

OFFICERS FOR 1904.

President.....R. H. HARDING, Thorndale.
Vice-President.....J. M. GARDHOUSE, Weston.
Secretary-Treasurer.....A. P. WESTERVELT, Toronto

Directors :

Cotswolds.....D. MCCRAE, Guelph.
Leicesters.....ANDREW WHITELAW, Guelph.
Hampshires and Suffolks.....JOHN KELLY, Shakespeare.
Dorsets.....JNO. A. MCGILLIVRAY, Uxbridge.
Southdowns.....JOHN JACKSON, Abingdon.
Oxfords.....JAMES TOLTON, Walkerton.
Lincolns.....JOHN T. GIBSON, Denfield.
Shropshires.....D. G. HANMER, Mt. Vernon.
Dominion Live Stock Commissioner.....F. W. HODSON, Ottawa.
Ontario Agricultural College.....Prof. G. E. DAY, Guelph.

Auditor.....J. M. DUFF, Guelph.
General Director.....A. W. SMITH, Maple Lodge.

Delegates to Fair Boards :

Toronto Industrial.....J. M. GARDHOUSE, JOHN JACKSON, Abingdon.
Ottawa.....NORMAN WILSON, Cumberland.
London.....A. W. SMITH, Maple Lodge ; R. H. HARDING, Thorndale
Provincial Winter Fair.....A. W. SMITH, Maple Lodge ; JOHN JACKSON, Abingdon ; JAMES TOLTON, Walkerton.
Eastern Exhibition Committee R. H. HARDING, Thorndale ; J. G. CLARK, Ottawa ; JAS. RICHARDSON, South March.
Sale Committee.....R. H. HARDING, J. M. GARDHOUSE, and A. P. WESTERVELT.

FINANCIAL STATEMENT OF THE DOMINION SHEEP BREEDERS' ASSOCIATION FOR THE YEAR ENDING DECEMBER 31, 1903.

Receipts.

Members' fees	$ 81 00	
Legislative grant	2,500 00	
		$2,581 00

Expenditures.

Balance due Treasurer	$ 734 35	
Cash paid for prizes at Winter Fair	1,315 00	
Officers' salaries	350 00	
Directors' fees and expenses	180 81	
Postage and stationery	97 96	
Printing	29 66	
Telegraph, telephone, express, etc.	25 34	
Typewriting and office expenses	409 36	
Auditor	5 00	
Miscellaneous items	4 21	
To balance due Treasurer		570 69
	$3,151 69	$3,151 69

Audited and found correct.

R. H. HARDING, President.
J. M. DUFF, Auditor. A. P. WESTERVELT, Treasurer.

MEMBERS OF THE DOMINION SHEEP BREEDERS' ASSOCIATION, 1903-4.

Name and Address.	Breed.
Allen, Robt. S., Cooper	Cotswolds
Arkell, Henry, Arkell	Oxford Downs
Arkell, W. H., Teeswater	Oxford Downs
Armstrong, G. B., Teeswater	Leicesters
Brethour, J. E., Burford	
Brien & Sons, E., Ridgetown	Cotswolds
Bonnycastle, F., Campbellford	Cotswolds
Bowman, James, Guelph	Suffolks, Dorsets
Campbell, John, Woodville	Shropshires
Carruthers, Wm., Cashel	
Cousins & Sons, John, Harriston	Oxfords
Conworth, J., Paris	Shropshires
Currelly & Son, T., Fullarton	Leicesters
Donaldson, Wm., South Zorra	Shropshires
Douglas, R. J., Galt	Southdowns
Drummond, G. A., Pt. Claire, Que	Southdowns
Evans, David, Somenos, B.C.	Southdowns
Evans, Smith, Gourock	Oxfords
Edwards, W. C., Rockland, Ont	Shropshires
Easton, R. & W., Paris, Ont.	Shropshires
Ficht, Val., Oriel	Cotswolds
Gardhouse, J. M., Weston	Leicesters
Garbutt, R. J., Belleville	Leicesters
Gibson, J. T., Denfield	Lincolns
Gibson, Richard, Delaware	Shropshires
Harding, R. H., Thorndale	Dorset Horns
Hanmer & Sons, D. G., Mt. Vernon	Shropshires
Hastings Bros., Crosshill	Shropshires
Hamill & Sons, Jos., Harwich	Shropshires
Hagar, Sheriff, Rockland	
Hindmarsh, Geo., Ailsa Craig	Shropshires
Hine, R. J., Dutton	Oxfords
Hood, G. B., Guelph	Leicesters
Hodson, F. W., Ottawa	
Hoggard & Sons, Jno., Ranelagh	Leicesters
Hume, Jas., Arkell	Cotswolds
Hunter, John, Wyoming	Dorsets
Innes, Donald, Tobique River, N.B.	Shropshires and Cotswolds
Jackson, John, Abingdon	Southdowns
Johnston, Jas., Trafalgar	Dorset Horns
Jull, J. H., Mt. Vernon	Oxfords
Kelly, John, Shakespeare	Hampshires and Leicesters
Laird, G. & B., Guelph	Hampshires and Leicesters.
Lewis, F. M., Burford	Shropshires
Lee & Sons, J. W., Simcoe	Oxfords
Lloyd-Jones, T., Burford	Shropshires
Luxton, A. G., Milton	Dorset Horns
Martin, Wm., Binbrook	Southdowns
Martin, E. E., Canning	Southdowns
Martindale, F. & Sons, York	Lincolns
Monkman, W. D., Bondhead	Shropshires
McFarlane, John, Clinton	Shropshires
McCrae, D., Guelph	Shropshires and Cotswolds
McEwen, Robt., Byron	Southdowns
McNelly, Hugh, Arkell	Cotswolds
McGillivray, J. A., Uxbridge	Dorsets
McRobie, F., Iroquois	Leicesters
Orr, John, Galt	Leicesters
Park, Norman, Norwich	Cotswolds
Parkinson, E. & L., Eramosa	Lincolns
Rawlings, John, Ravenswood	Cotswolds
Robertson, Jas., Milton	Cotswolds
Robinson, Thos., Kintore	Cotswolds
Richardson, J. A., South March	Shropshires
Rudell, Abram, Hespeler	Shropshires
Snell, R. P., Snelgrove	Cotswolds
Styles, Wm. G., Rosser, Man.	Cotswolds
Sherriff, Jas., Rockland	Cotswolds
Smith, John, Beachville	Leicesters
Smith, A. W., Maple Lodge	Leicesters
Smith, W. M., Fairfield Plains	Merinos
Smith, Wm., Columbus	Cotswolds
Silversides, Fred., Uxbridge	
Smith, Henry, Clarence	
Scott, Jas., Aberfoyle	Southdowns
Taylor, D. H., Corwhin	Leicesters
Telfer Bros., Paris	Southdowns
Tolton, Jas., Walkerton	Oxfords
Tolton, Jas. L., Walkerton	Oxford-Downs
Thompson, Wm., Uxbridge	Cotswolds
Thompson, D. & E., Marden	Cotswolds
Whitelaw, A. & W., Guelph	Leicesters
Wright, John, Mohawk	Leicesters
Wright, John, Chesley	Leicesters
Wright, W. E., Glanworth	Shropshires
Wilson, N. F., Rockland	Shropshires
Wood, C., Freeman	Leicesters
Woods, E., Freeman	Leicesters
Wood, J. W., Jr., Gananoque	Dorset Horns
Yuill, J. & Sons, Carleton Place	Shropshires

Dominion Swine Breeders' Association

ANNUAL MEETING.

The annual meeting of the Dominion Swine Breeders' Association was held at the Palmer House, Toronto, Feb. 6th, 1904, at 9.30 a.m. The President, G. B. Hood occupied the chair. On motion the minutes of the last annual meeting were taken as read.

PRESIDENT'S ADDRESS.

By Major G. B. Hood, Guelph.

I will not take up the time of the meeting reviewing the work of the year, as the Secretary's Report will deal fully with that. However, I may be allowed to congratulate the Association on the continued success of the swine industry. While prices at the present time are not quite as high as they have been for the past two or three years, still they are such as to leave a fair margin of profit to the careful feeder. The demand for pure bred animals of the right type has been quite equal to the supply. All animals of superior merit have been easily disposed of at satisfactory prices.

To those who are engaged in the business of raising pure-bred hogs it will be quite noticeable that the average farmer is much more careful in selecting good animals of the bacon type than he was a few years ago. As a result of this shippers tell us that culls are now almost reduced to a minimum. For this improved state of affairs we have to thank our breeders and importers, the judging classes at the Ontario Agricultural College and the speakers at our Farmers' Institute meetings who have so faithfully described the form and merits of the bacon hog. These, combined with the natural shrewdness of the Canadian farmer, have made the swine industry what it is to-day.

While it is right to congratulate ourselves on our success, it will not do to rest on our laurels. We must "still be up and doing." The hog that the market requires is the hog we must endeavor to supply.

In conclusion I congratulate the Association on the satisfactory state of our finances, and express the hope that the coming year may still see the hog industry going forward.

The Secretary's Report and Treasurer's Statement were then presented, and on motion it was resolved: "That the Secretary's Report and Treasurer's Statement be adopted."

Upon motion of Mr. R. H. Harding, seconded by Mr. George Green, Mr. J. W. Nimmo was appointed Assistant Recording Secretary of the Association. Both the mover and seconder spoke highly of Mr. Nimmo's qualifications for the position. The sum of $100 was also voted Mr. Nimmo in recognition of his past services to the Association.

EXPERT JUDGES.

The following are the Expert Judges nominated:

Berkshires: Wm. Wilson, Snelgrove; J. C. Smith, Hintonburg; X. Plaunt, North Cote; Samuel Dolson, Alloa; Hugh G. Clark, Norval; P. W. Boynton, Dollar; Alex. Smith, Maple Lodge; Wm. Jones, Zenda; W. G. Caven, East Toronto; Jas. McEwen, Kertch; John Boyes, Jr., Churchill; Henry Jones, Zenda; H. J. Davis, Woodstock; J. C. Snell, London; Thos. Teasdale, Concord; Geo. Green, Fairview; Robt. Vance, Ida; T. A. Cox, Brantford; Jas. Quirie, Delaware; Jos. Featherston, Streetsville; R. P. Snell, Snelgrove; C. K. Decker, Chesterfield; Chas. Youngs, Brooksdale; D. DeCourcy, Bornholm; R. H. Harding, Thorndale; Jos Barnett, Rockland; E. E. Martin, Canning; H. B. Jeffs, Bond Head; Wm. Linton,

Aurora; E. Brien, Ridgetown; G. B. Hood, Guelph; J. E. Brethour, Burford; Alex. Hart, Hampstead; W. A. Shields, Milton; D. J. Gibson, Bowmanville; S. J. Lyons, Norval; A. Johnston, Greenwood; C. C. McAvoy, Atha; J. L. Clark, Norval; Aiken Dolson, Alloa; John Watkins, Norval; D. C. Flatt, Millgrove; W. H. Durham, Toronto; William Hartley, Alloa; John Bright, Myrtle; Frank Teasdale, Concord.

Yorkshires and Tamworths: David Barr, Jr., Renfrew; E. A. Kipp, Chilliwack, B.C.; Jas. Bray, Longburn, Man.; Lou Rogers, Weston; Geo. D. Betzner, Copetown; R. J. Beer, Mimosa; W. R. Bowman, Mount Forest; Wm. Jones, Zenda; R. J. Garbutt; Belleville; R. H. Harding, Thorndale; N. M. Blain, St. George; J. H. Simonton, Chatham; G. North, Marden; A. Elliott, Galt; L. F. Master, Haysville; A. C. Hallman, New Dundee; D. G. Hammer, Burford; John Nichol, Hubrey; J. E. Brethour, Burford; A. Laurie, Wolverton; Wm. Davies, Toronto; Richard Gibson, Delaware; Henry Dedels, Kossuth; G. B. Hood, Guelph; Jos. Featherston, Streetsville; H. E. Sharp, Ida; A. F. McGill, Hillsburg; J. M. Hurley, Belleville, Ont.; Geo. Gier, Grand Valley; Jas. Stephen, Trout River, Que.; R. M. Culloch, Harriston; Jos. Fletcher, Oxford Mills; Robt. Nichol, Brussels; A. F. Foreman, Collingwood; Jas. Leach, Toronto; Wm. Howe, North Bruce; G. E. Day, Guelph; F. Shore, White Oak; H. J. Davis, Woodstock; D. C. Flatt, Millgrove; W. R. McDonald, Ridgetown; W. Elliott, Galt; R. G. Martin, Marysville; J. E. Cousins, Harriston; Geo. Green, Fairview; J. W. Callbeck, Augustine Cove, P.E.I.; J. G. Clark, Ottawa; J. C. Smith, Hintonburg; D. Drummond, Myrtle; H. B. Jeffs, Bond Head; And. Graham, Pomeroy, Man.; A. Carey, Millgrove; Jas. Yule, East Selkirk, Man.; A. W. Ross, Bromley; J. J. Pearson, Cooksville; R. F. Duck, Port Credit; Duncan Anderson, Rugby; Thos. Hurley, Belleville; J. H. Grisdale, Ottawa; A. A. Colwill, Newcastle; M. Cumming, O.A.C., Guelph; R. O. Morrow, Hilton; Geo. Douglas, Mitchell; Jas. Douglas, Mitchell; A. P. Ketchen, Ottawa.

Essex: R. P. Snell, Snelgrove; Major Hood, Guelph; R. J. Garbutt, Belleville; R. H. Harding, Thorndale; Wm. Jones, Zenda; Jas. Main, Milton.

Duroc-Jerseys: D. C. Flatt, Mill Grove; D. De Courcy, Bornholm; Major Hood, Guelph; Geo. Green, Fairview; Wm. Jones, Zenda; J. E. Brethour, Burford; R. H. Harding, Thorndale; W. M. Smith, Scotland; Jos. Featherston, Streetsville; W. N. Tape, Bentpath; Geo. Bennett, Charing Cross; H. George, Crampton; W. Wilson, Snelgrove; Prof. G. E. Day, Guelph; Jos. McGarvin, Chatham.

Poland Chinas: Thos. Teasdale, Concord; Jos. Featherston, Streetsville; Daniel D. Courcy, Bornholm; Geo. Green, Fairview; Wm. Jones, Zenda; W. H. Smith, Scotland; Henry Jones, Zenda; R. H. Harding, Thorndale; C. W. Yapp, Brantford; R. Willis, Glen Meyer; W. N. Tape, Bentpath; Prof. G. E. Day, Guelph; Lawrence Tape, Ridgetown.

Chester Whites: E. D. George, Putnam; R. E. Birdsall, Birdsall; Albert Packy, Bloomington; Wm. Jones, Zenda; J. C. Snell, London; Geo. Green, Fairview; D. DeCourcy, Bornholm; R. H. Harding, Thorndale; G. B. Hood, Guelph; Gideon Snyder, Jarvis; Jos. Featherston, Streetsville; H. George, Crampton; G. Bennett, Charing Cross; J. E. Brethour, Burford; J. C. Nichol, Hubrey; Prof. G. E. Day, Guelph; W. E. Wright, Glanworth; Robert Clark, Ottawa; D. C. Flatt, Mill Grove; Geo. Douglass, Mitchell; J. C. Smith, Hintonburg. Provincial Winter Fair—G. B. Hood, Guelph.

RESOLUTIONS.

Mr. F. W. Hodson, Dominion Live Stock Commissioner, outlined the result of his official visit to St. Louis, and also explained to the breeders the exact condition of the regulations existing between the United States and Canada, and produced letters from the United States Department of Agriculture substantiating same.

"That the Dominion Swine Breeders' Association, in annual meeting assembled, endorse the action of our representatives at the meeting held in the Rossin House, November 11th, 1903; and also the position taken by the Dominion Live Stock Commissioner in relation to the St. Louis Exposition." Carried.

After the plan of forming this National Live Stock Convention had been fully outlined by Mr. Hodson, on motion it was resolved :

"That the Dominion Swine Breeders' Association, in annual convention, consider it desirable to establish a National Live Stock Association, and that the following delegates be our representatives :

Delegates : Thos. Teasdale, Concord, Ont.; J. E. Brethour, Burford, Ont.

From Record Association : D. C. Flatt, Mill Grove, Ont.; Wm. Jones, Mount Elgin, Ont.

A discussion arose as to the advisability of having classes for Poland Chinas, Duroc-Jerseys, and Essex at the Provincial Winter Fair.

"That this meeting recommend to the Winter Fair Board that the three breeds, Duroc-Jerseys, Poland Chinas, and Essex, be put in class for 'any other breed, grades and crosses.'" Carried.

"That the Dominion Swine Breeders' Association grant the sum of $300 to Winnipeg on account of its being a Dominion Exhibition, and the usual amount be donated to Brandon." Carried.

Delegates : Thos. Teasdale, Concord ; J. E. Brethour, Burford ; D. C. Flatt, Mill-

"That a grant of $300 be given to Toronto Industrial Exhibition, with the understanding that the prize list will be increased over last year." Carried.

"That this Association appoint delegates to co-operate with the Farmers' Association and other Stock Breeders' Associations to interview the Railway Commission, and urge upon them the necessity of a reduction in freight and passenger rates." Carried.

grove, and A. P. Westervelt, Toronto.

D. C. Flatt: Could there be any weight brought to bear upon the express companies ?

Mr. Hodson : You should instruct your Secretary to look into the matter of express rates as well as freight rates. I think the express rates are very excessive. The express on birds carried thirty or forty miles really amounts to more than the value of average birds. I shall be very glad to act with this committee and try to get all the information I can.

On motion it was resolved :

"That the correspondence from W. S. Denison, Henry Wade, S. E. Hampton, and the matter of rules, regulations and incorporation of the Dominion Swine Breeders' Association all be referred to the Directors, giving them power to deal with the whole matter as they may see fit."

OFFICERS FOR 1904.

Hon. President	F. W. Hodson, Dominion Live Stock Commissioner, Ottawa
President	Thos. Teasdale, Concord.
Vice-President	R. H. Harding, Thorndale.
Secretary-Treasurer	A. P. Westervelt, Toronto.
Assistant Recording Secretary	J. W. Nimmo, Toronto.
Directors :	
Berkshires	Geo. Green, Fairview
Yorkshires	J. E. Brethour, Burford
Chester Whites	D. DeCourcy, Bornholm
Poland Chinas	Wm. Jones, Zenda
Duroc-Jerseys	W. M. Smith, Scotland
Tamworths	J. C. Smith, Hintonburg
Essex	Jos. Featherston, Streetsville
General Director	G. B. Hood, Guelph
Auditor	J. M. Duff, Guelph

Ontario Agricultural College - - - - - - PROF G. F. DAY, Guelph

Representatives to Fair Boards :

Toronto Industrial—D. C. FLATT, Millgrove, and R. P. SNELL, Snelgrove
Ottawa—A. P. WESTERVELT, Toronto, and J. A. RICHARDSON, South March
London—GEO GREEN, Fairview, and D. DeCOURCY, Bornholm
Peterboro—ROBERT VANCE, Ida
Guelph G. B. HOOD, Guelph, and JAS. ANDERSON, Guelph
Belleville—J. M. HURLEY, Belleville
Kingston—R. J. GARBUTT, Belleville, and THOS. HURLEY, Belleville [Mount Elgin
Provincial Winter Fair PROF. G. E. DAY, Guelph ; G. B. HOOD, Guelph ; and WM. JONES,
Eastern Fair Committee—DAVID BARR, jr., Renfrew, and ROBERT CLARK, Ottawa.

FINANCIAL STATEMENT OF THE DOMINION SWINE BREEDERS' ASSOCIATION FOR THE YEAR ENDING DECEMBER 31, 1903.

Receipts.

Cash on hand	$1,499 03	
Members' fees	816 00	
Legislative grant	2,500 00	
Registration fees	1,806 55	
		$6,621 58

Expenditures.

Grants to Fairs—Winnipeg, $84 ; Brandon, '02, '03, $80	$ 164 00	
Cash paid for prizes at Winter Fair	1,655 00	
Officers' salaries	350 00	
Directors' fees and expenses	247 46	
Postage and stationery	122 27	
Printing	1,346 95	
Telegraph, telephone, express, etc	34 65	
Typewriting and office expenses	397 21	
Auditor, '02, $20 ; '03, $15	35 00	
Grant to wages re man with stock cars	50 00	
Miscellaneous items	4 22	
Cash on hand	2,214 82	
		$6,621 58

Audited and found correct.

G. B. HOOD, President.

J. M. DUFF, Auditor. A. P. WESTERVELT, Treasurer.

MEMBERS DOMINION SWINE BREEDERS' ASSOCIATION, 1903-04.

Name and Address.	Breed.
Allison, David, Roland, Man.	Berkshires
Alton, Jas., Belfast	Berkshires
Armstrong, J. A. & A. A., Roland	Yorkshires
Adair, Wm., Norland	Berkshires
Allen, Fred. T., Hampton	Berkshires
Andrew Wm., Rounthwaite, Man.	Berkshires
Baldeone, Wm. & Sons, Manitou, Man.	Berkshires
Bradley, L. A., Portage la Prairie, Man.	Berkshires
Bray, Jas., Longburn, Man.	Yorkshires
Barr, David, jr., Renfrew	Berkshires
Blain, N. M., Lake Port, Minn.	Tamworths
Banting, T. E. M., Banting, Man.	Yorkshires
Bartleman, A. T., Wapella, Assa.	Berkshires
Bryan, Chas. R. B., Durham, N.S.	Yorkshires
Baldwin, W. E., Manitou, Man.	Berkshires and Yorkshires
Beggs, John, Arcola, Assa.	Berkshires
Bell Est., John, Amber	Tamworths
Brethour, J. E., Burford	Yorkshires
Bernaith, Jas., Nashville	Yorkshires
Beingessnor, F. H., Mildmay	P. Chinas and C. Whites
Bredt, P. M., Regina, Assa.	Yorkshires
Barter, Simon, Shawville, Que.	Berkshires
Bartlett, D. & Son, Smithville	Berkshires
Bell, Jno. L., Waverley	Berkshires
Brandon, J. H. & M. N., Fenelon Falls	Yorkshires
Barber, R. P., Saskatoon, Sask.	Yorkshires
Birdsall, F. & Sons., Birdsall	C. Whites
Brien & Sons, E., Ridgetown	Berkshires
Birch, Rich., Anderson	Yorkshires
Blight, Emerson, Millwood, Man.	Berkshires
Britton, Robt., Allan Park	Berkshires
Blais, A., Glen Sandfield	Yorkshires
Bailey, Jas., Sardis, B.C.	Yorkshires
Boynton, R. W., Dollar	Berkshires
Brown, F. W., Portage la Prairie	Berkshires
Bonnycastle & Son, F., Campbellford	Berkshires
Bowman, T. E., Berlin	Yorkshires
Bowman, W. A., Elmdale, N.Y.	Yorkshires
Boyes, John R., jr., Churchill	Berkshires
Bulstrode, C. G., South Qu'Appelle, Assa.	Berkshires
Bruce, Jas., Newton Robinson	Yorkshires
Bowins & Son, I., Woodville.	Yorkshires
Brooks, J. D., Plum Coulee, Man.	Yorkshires
Brutichner, D. S., Elmira	Yorkshires
Burnham, A. A., Cobourg	Yorkshires
Bedlow, John, Cardinal	Berkshires
Begg, H. C., Glanworth	Yorkshires
Betzner, Geo. D., Copetown.	Yorkshires
Bowins, J. S., Woodville	Berkshires
Barchfield, L. D., Grimsby	Yorkshires
Barber, Wm., Almonte	Yorkshires
Brandon, C. W., Walsingham Centre	Tamworths
Bishop, W. E., Devlin	Yorkshires
Blanchard, C. M., Appleby	Yorkshires
Bennett & Son, G. A., Carlisle	Yorkshires
Bennett, John, Orton	P. Chinas
Brooksbank, A., Aurora	Yorkshires
Callback, J. W., Augustine Cove, P.E.I.	Berkshires
Clark, J. L., Norval	Yorkshires
Crawford, Thos., Camlachie	Yorkshires
Clemons, G. W., St. George	Yorkshires
Chalmers, C., Low Banks	Yorkshires
Cavan, Geo., Toronto	Berkshires
Cowieson, J. B., Queensville.	Berkshires and Yorkshires
Campbell, Mac, Samson	Berkshires and Yorkshires
Coulter, Jno. M., Talbotville	Yorkshires
Chappelle, A. M., Morden, Man.	Yorkshires
Crowell, W. N., Napinka, Man.	Berkshires
Connolly, P. J., Middleton, P.E.I.	Yorkshires
Cole, F. J., Bowmanville	Yorkshires
Colwell Bros., Newcastle	Tamworths and Yorkshires
Cousins & Sons, Jno., Harriston	Berkshires
Collyer, F. J., Welwyn, Assa.	Berkshires
Currie, Chas., Morriston	Yorkshires
Cowan, J. S., Newry	Yorkshires
Cumming, A., Lone Tree, Man.	Berkshires
Connor, G. H., Melita, Man.	Berkshires
Coles, Major Frank, Moffatt, Assa.	Yorkshires
Crockett, Geo., York, P.E.I.	Yorkshires
Cobb Dairy Co., Guelph	Yorkshires
Clark, J. W., Onondaga	Yorkshires
Carruthers, C. & J., Cobourg.	Yorkshires
Campbell, D, Norwood	Berkshires
Cline, F. C., St. Andrews, N.B.	Yorkshires
Collins, P. O., Bowesville	Yorkshires
Curtis, C. W., Warden, Que.	Yorkshires
Davis, H. J., Woodstock	Berkshires
Day & Sons, N., Powle's Corners	Yorkshires
Davidson, Herbert, Nelson	Berkshires
Dalton, John, Victoria Harbour	Yorkshires
Davidson, T., Spring Valley	Yorkshires
Decker, C. R., Chesterfield	Berkshires
Dennison, W. S., Dennison's Mills, Que.	C. Whites.
De Courcey, D., Bornholm	C. Whites.
De Veter, W. H., Woodstock, N.B.	Yorkshires
Deeks, J. D., North Williamsburg	Yorkshires
Dewar, Geo. A., Kertch	Yorkshires
Dedels, H., Breslau	Yorkshires
Dell, Thos., Kertch	Berkshires
Denoon, A. G., Eden, Man.	Yorkshires
Drewry, J., Cartwright, Man.	Yorkshires
Dyment, S., Barrie	Berkshires and Yorkshires
Donaldson, Jas., Dewittville, Que.	C. Whites
Dolson, Samuel, Alloa	Berkshires
Douglas, J. H., Warkworth	Berkshires
Douglas, A. R., Franklin, Man.	Berkshires
Douglas & Son, D., Mitchell.	Tamworths
Duncalfe, W. J., Miami, Man.	Yorkshires
Dunbar, Jno., St. Marys	Berkshires
Durham, W. H., E. Toronto	Berkshires
Duck, R. F., Pt. Credit	Yorkshires
Duthie, Jas., Hartney, Man.	Berkshires
Duke, D., Burgoyne	Yorkshires
Dufton, J. C., Wapella, Assa.	Yorkshires
Dubr, Geo. A., Rodney	Yorkshires
Dunn, Geo., Neepawa, Man.	Berkshires
Eckhart, Jno., Bunessan	Yorkshires
Edwards, W. C., Rockland	Yorkshires
Elliott & Son, A., Galt	Tamworths
Elliott, Robt., Ormstown, Que.	Berkshires

MEMBERS DOMINION SWINE BREEDERS' ASSOCIATION, 1903-4. Continued.

Name and Address.	Breed.
Ewens, J. M., Minnedosa, Man.	Yorkshires
Elliott, Wm., Springbank	
Eston, J. H. C., Curry Hill	Yorkshires
Elwood, Jas., Longbank	Yorkshires
English, Wm. & Geo. E., Petrolia	Yorkshires
Embro, L. W., Delta	Berkshires
Fiatt, D. C., Milligroye	Yorkshires
Frame, Jno., Crosshill	Yorkshires
Fawcett, F. C., Upper Sackville, N.B.	Yorkshires
Fairfield Bros., Lethbridge, Alta.	Berkshires
Frank & Son, A., The Grange	Yorkshires
Featherston & Son, Jos., Streetsville	Yorkshires, Suffolk Essex
Flett, P., Shopland, B.C.	Berkshires
Ferris, John, Macdonald, Man.	Yorkshires
Field, W. H. & J. O., Vanessa	Berkshires
Fried, Allan, Roseville	Berkshires
Foster, J. G., Moira	Yorkshires
Forbes, A. S., Winterbourne.	Yorkshires
Graham, A. I., Pomeroy, Man.	Yorkshires and Berkshires
Garbutt, R. J., Belleville	Berkshires
Gray, Jas., Rockwood	Yorkshires
Galbraith, W. H., Hartney, Man.	Berkshires
Gardner, Jos., Grange, Man.	Berkshires and Yorkshires
Garner, Jas., Fenwick	Berkshires
Glazier, D. M., Brockville	Yorkshires
Granton, D. G., Elmvale	Yorkshires
Gamble, Wm., Georgetown	Yorkshires
Graham, N., Udora	Yorkshires
Gray, W. L., Millet, Alta.	Berkshires
Glendinning, Henry, Manilla	Yorkshires
Green, Geo., Fairview	Berkshires
Gregg & Son, H., Salford	Berkshires
George, E. D., Putnam	Tamworths and C. Whites
Green, J. L., Greenwood	Yorkshires
Greenway, Hon. Thos., Crystal City, Man.	Berkshires and Yorkshires
Glen, G. B., Fergus	Berkshires
German, Herbert, St. George	Yorkshires
Gibson, D. J., Bowmanville	Berkshires
Gibson, Rich., Delaware	Yorkshires
Gillespie, W., Stonewall, Man.	Berkshires
Griffin, L. W., Moosomin, Assa.	Yorkshires
Gibbons, Thos., Saltoun, Sask	Yorkshires
Grigg, Walter, Roseneath	Berkshires and Yorkshires
Groff, Israel, Alma	Berkshires
Groat, Chas., Brooklin	Tamworths
Gordon, Wm., Udora	Yorkshires
Grose, Jacob, Ringwood	Yorkshires
Gunn, J. R., Arden, Man.	Yorkshires
Goodfellow Bros., Macville	Yorkshires
Goodliffe, S. J., Sussex, N.B.	Yorkshires
Hicks, J. H., Weyburn, Assa.	Yorkshires
Hauser, Ignatius, Weisenburg	Berkshires
Harris, Geo. N., Lynden	Yorkshires
Harding, R. H., Thorndale	C. Whites
Hastie, A. C., Comber	Berkshires
Hadwen, G. H., Duncans, B.C.	Berkshires
Hetley, Wesley, Christina	Berkshires
Hardy, W., Roland, Man.	Berkshires
Hefferman, O., Marden	Yorkshires
Haldon Bros., Turgoose, B.C.	Berkshires
Hall, J. W., Ayr	Yorkshires
Harrington, Isaac, Loon Creek, Assa.	Yorkshires
Henderson, E. B., Minitona, Man.	Yorkshires
Hanning, D. G., Morriston	Yorkshires
Hawkins & Son, W., Alliston.	Yorkshires
Hosken, A. E., Cobourg	Yorkshires
Henderson, J. C., Chilliwack, B.C.	Yorkshires
Hill, Geo., Delaware	Berkshires
Hillier Bros., Albuna	Berkshires
Hickling, C. M., Barrie	Yorkshires
Hyslop, Robt., Brantford	Berkshires
Hind, J. & R., Cottonwood, Assa.	Yorkshires
Hord & Son, John, Parkhill.	Yorkshires
Hood, G. B., Guelph	Berkshires
Howard, W. J., Dollar	Berkshires
Howe, Wm., North Bruce	Yorkshires
Halliday, Frank, Eldon, P. E. I.	Yorkshires
Hardy, T. C., Headingly, Man.	Yorkshires
Honey, Rich., Brickley	Yorkshires
Hogle, S. G., Violet	Yorkshires
Hope, Robt., Obern, Man.	Berkshires
Hurley, J. M., Belleville	Yorkshires
Hutchison, L. E., Neepawa, Man.	Berkshires
Hosken, B., The Gully	Berkshires
Hopkins, A. G., Neepawa, Man.	Yorkshires
Holmes Bros., Amherst, N.S.	Yorkshires
Hughes, C. W., Box Alder	Yorkshires
Howard, W. A., Wetaskiwin, Alta.	Yorkshires
Huggins, Wm., East Grand Forks, Minn.	Yorkshires
Howlett, Ira L., Keldon	Yorkshires
Hodson, F. W., Myrtle	Yorkshires
Horton, W. L., North Pelham.	Berkshires
Hume & Co., A., Menie	Yorkshires
Irwin, Geo., Nicolston	Yorkshires
Irwin & Son, Alex., Stonewall, Man.	Duroc Jerseys
Jarvis & Bro., R. L., Harwich	Yorkshires
James, E. R., Rosser, Man.	Yorkshires
Jeffs & Son, E., Bondhead	Berkshires
Jennings, Hy., Tottenham	Yorkshires
Jones, Wm., Zenda	P. Chinas.
Johnson, Ira, Balmoral	Yorkshires
Johnston, V. W., Clymer, Pa.	Yorkshires
Johnson, C. L., Rosedene	Yorkshires
Johnston, Robt., Rugby	Yorkshires
James & Son, W., Rosser, Man.	Yorkshires
Johnston, Thos., Boissevain, Man.	Yorkshires
Kerr, R. J., Mimosa	Yorkshires and Berkshires
Kelly Bros, Hagarsville	Berkshires
Ker, J. A., Woodburn	Yorkshires
Kitching, John, Corwhin	Berkshires
Kitson, Wm., Burnside, Man.	Berkshires
Kipp, E. A., Chilliwack, B.C.	Yorkshires
Knox, Andrew, South Dummer	Yorkshires
Laidler, Jos., Neepawa, Man.	Berkshires
Lahmer, John, Vine	Berkshires
Langley, J. V., Rosthern, Sask.	Berkshires and Yorkshires
Lemon, S., Lettleby	Berkshires
Lee, J. M., Simcoe	Berkshires
Lee & Son, Jos., Dunham, Que.	C. Whites.
Lee, W. H., Williamsford	Yorkshires
Leeson, D., Copenhagen	Berkshires
Livingston, W. A., Allan Park	Yorkshires
Little, Geo., Kirkwall, Man.	Yorkshires
Linton, Wm., Aurora	Berkshires
Lowden, M. L., Binbrook	Tamworths
Lyons, S. J., Snelgrove	Berkshires
Lund, Thos., Stonewall, Man.	Yorkshires
Lahmer, Thos., Vine	Berkshires

MEMBERS DOMINION SWINE BREEDERS' ASSOCIATION, 1903-4.—Continued.

Name and Address.	Breed.
Lang, Geo., Indian Head, Assa	Berkshires
Little, Thos., Kirkwall, Man.	Yorkshires
Mayloney, F. A., Chapeau, Que.	Yorkshires
Martin, E. E., Canning	Berkshires
Martin, W. H., Warden, Que.	Berkshires
Marlott & Chalk, Yarmouth Centre	Yorkshires
Marks, S. A., Chippewa Bay, N.Y.	Yorkshires
Marsh & Son, E., Gladstone.	Yorkshires
Margerrison, Wm., Applehill.	Yorkshires
Main & Sons, A., Sheffield.	Berkshires
Martin, W. A., Corbyville	Berkshires
Mead Bros., Pincher Creek, Alta.	Berkshires
Malhausen Wm., Walkerton.	Yorkshires
Martindale & Son, F., York	Yorkshires
Margetson Bros., Miami, Man.	Yorkshires
Millor, T. D., Minnedosa, Man.	Yorkshires
Marshall, A. D., Roland, Man.	Yorkshires
Martinson Bros., Northwood.	Yorkshires
Minnis, Chas., Leamington	Berkshires
Mitchell & Son, C. N., Port Elgin	Yorkshires
Midwinter, Chas., Louise Bridge, Man.	Yorkshires and Berkshires
Miller & Ferguson, Spencerville	Yorkshires
Myles, J. & A., Thornbury	Yorkshires
Mitchell, Jno., Waterdown	Berkshires
Morrell, F. A., Way's Mills, Que.	C. Whites
Morrow, R. O., Hilton	Yorkshires and Tamworths
Moore, Henry, Stonewall, Man.	Berkshires
Morwood, Dan., Treherne, Man.	Berkshires
Mitchell, Jos., Eramosa	Yorkshires
Mowder, Jas., Mongolia	Berkshires
Morton, W. H., Beausejour, Man.	Yorkshires
Moore, R. M., Winnipeg, Man.	Yorkshires
Murray, Thos., Avonton	Berkshires and Yorkshires
Murdoch, Wm., Palmerston	Berkshires
Martin, R. G., Marysville	Berkshires and Yorkshires
Mark, G. H., Oakwood	Yorkshires
Martin, W. C., Pilot Butte, Assa.	Yorkshires
Moody & Sons, R., Guelph	Berkshires
Moore W. J., Lindsay	Yorkshires
McAvoy, C. C., Atha	Berkshires
McCraw, David, Guelph	Berkshires
McDairmid, D. R., Ridgetown	Berkshires
McCallum, D., Beaver Lake, Alta.	Yorkshires
McCabe, Anson, Mount Wolfe.	C. Whites.
McTavish, Jas., Seeburn, Man.	Yorkshires
McNaughton, J. B., Dominionville	Yorkshires
McPherson, Alex., Rutherford	C. Whites
McKenzie, R., High Bluff, Man.	Berkshires
McEwen, Jas., Kertch	Berkshires
McKellar, J. M., Belmont	Yorkshires
McBeth, Geo., Prince Albert, Sask.	Yorkshires
McPhee, D. A., Vankleek Hill	Yorkshires
McLean, T. D., Plum Coulee, Man.	Yorkshires
McCarthy, Ed., Tamarisk, Man.	Yorkshires
McGill, J. A., Neepawa, Man.	Berkshires
McIver, K., Virden, Man.	Berkshires
McKnight, S. J., Epping	Yorkshires
McKinnon, D. C., Atherly	Yorkshires
McDairmid, Mrs. H. L., Headingly, Man.	Yorkshires
McDonald, W. R., Ridgetown	Tamworths
McDonald, John B., Muirkirk	Berkshires
McDonald & Son, Archie, St. Mary's	Berkshires
McCormick & Son, Jno., Reading	Yorkshires
McDowell, H. T., Shawville, Que.	Berkshires
McClure, T. A., Meadowvale	Yorkshires
McDuffie, D. S., Trafalgar	Yorkshires
McCutcheon, W. J., Brussels.	Yorkshires
McLoughrey, Hy., Markdale	Yorkshires
McQueen, J. & R., Elora	Yorkshires
McNally, W. J., Elmwood	Yorkshires
McAuley, T. B., Montreal, Que.	Yorkshires
Neilson, John, Scarboro	Yorkshires
Nichol, J. C., Hubrey	Tamworths
Nichol, Robt., Brussels	Berkshires and Tamworths
Nichols, E. E., South Avendago, N.Y.	Yorkshires
Nichol, Alex., Brandon, Man.	Tamworths
O'Brien, Jno., London West.	Yorkshires
Ormiston, Wm., Columbus	Yorkshires
Ouellette, D. & A., Veraker	Berkshires
Plaunt, X., Northcote	Berkshires
Parlee, M. N., Sussex, N.B.	Berkshires
Playfair, Geo., Baldur, Man.	Yorkshires
Pangman, S. & Sons, Valentyne	
Paterson, Wm., Churchill	Yorkshires
Peck, Wm. F., Snowflake, Man.	Berkshires
Preston, R. S., Pilot Mound, Man.	Yorkshires
Peters & Son, E. J., Elmhurst, N.B.	Yorkshires
Pearson & Sons, Meadowvale	Yorkshires
Peaker, G. A., Yorkton, Assa.	Yorkshires
Peters, W. H., Moosomin, Assa.	Yorkshires
Pritchard, R. J., Roland, Man.	Berkshires
Pomeroy, W. J., Belmore	Berkshires
The Prov. Farm, Charlottetown, P.E.I.	Yorkshires and Berkshires
Postle, F. L., Camp Chase, Ohio	Yorkshires
Prouse & Son, Wm., Ingersoll	Yorkshires
Pollock, W. E., Norwich	Yorkshires
Plunkett, Geo., Cobourg	Yorkshires
Potter, A. B., Montgomery, Assa.	Yorkshires
Rodgers, C. A., Jarvis	Yorkshires
Rice, F., Binscarth, Man.	Yorkshires
Reid, Isaac, Ardtrea	Berkshires
Rettie, Jas., Norwich	Yorkshires
Reesor, H. F., Cedar Grove	Yorkshires
Richardson, Jno. A., South March	Yorkshires
Rickert, Cyrus, Mannheim	Yorkshires
Rich, W. P., Clark	Berkshires
Rigley, Arthur, Headingly, Man.	Yorkshires
Ross, A. W., Bromley	Yorkshires
Rogers, L., Weston	Yorkshires
Robertson, Robt. A., Billing's Bridge	Yorkshires
Roth, Jacob, Hagersville	Yorkshires
Russell, Jas. A., Precious Corners	Yorkshires

MEMBERS DOMINION SWINE BREEDERS' ASSOCIATION, 1903-4.—Concluded.

Name and Address.	Breed.
Rudd, W. J., Eden Mills	Berkshires
Russell, D. H., Stouffville	Yorkshires
Ross, Jno. A., Melita, Man.	Yorkshires
Robb, G. B., Sheffield	Yorkshires
Rogers, S. F., Woodstock, N.B.	Yorkshires
Ronson, J. W., Acacia	Berkshires
Rudell, A., Respeler	Yorkshires
Reid & Co., Hintonburg	Yorkshires
Ridley, J. W., Manitou, Man.	Yorkshires
Rickett, C. E., Andover	Yorkshires
Robinson, W. J., Goodwood	Yorkshires
Stiver, Byron, Mt. Albert	Yorkshires
Shannon Bros., Cloverdale, B.C.	Berkshires
Savingny, Bruce, Peterborough	Yorkshires
Sargent, F. O., Eddystone	Tamworths
Straughan, R., Grenfel	Berkshires
Scarffe & Son, T., Rocky Saugeen	Yorkshires
Scamer, F. C., Strathcona, Alta.	Yorkshires
Stancombe, Jas., Cartwright, Man.	Yorkshires
Standeaven & Sons, F., St. Marys	Yorkshires
Standish, C. E., East Hatley, Que.	Berkshires
Sheperdson, W. J., Walters Falls	Berkshires
Spencer, W. H., Guilds	Berkshires
Sherwood, T., Fergus	Berkshires
Stewart, F. B., Espyville Station, Pa.	Yorkshires
Stewart, J. J., Gladstone, Man.	Yorkshires
Snell, J. H., Hagersville	Yorkshires
Stewart, Geo., Pipestone, Man.	Yorkshires
Snell, R. P., Snelgrove	Berkshires
Stewart, D., Carman, Man.	Yorkshires
Semple, Hugh, Herewood	Yorkshires
Stewart, Alex., Caledonia	Yorkshires
Skeen, J. C., Pt. Credit	Yorkshires
Stephen Bros., Saltoun, Assa.	Yorkshires
Seiffers, J. H., North Bruce.	Yorkshires
Semple, J. R., Brule, N.S.	Yorkshires
Sipprell & Carrol, Carholme	P. Chinas
Smith, W. M., Fairfield Plains	P. Chinas
Smith, W. J., Kilsyth	Berkshires
Stevenson, A., Attwood	Yorkshires
Smyth, J. M., Chatham	P. Chinas
Styles, Wm. G., Rosser, Man.	Tamworths and Yorkshires
Snowden, Sam'l, Bowmanville	Yorkshires
Smith, A. E., Millgrove	Yorkshires
Smith, F. C., New Hamburg	Tamworths
Scott, John, Glasgow	Yorkshires
Stewart, D., Hampstead	Yorkshires
Straube, A., Elmira	Yorkshires
Stouffer, Geo. A., Ringwood.	Yorkshires
St. John, W. G., Sunderland.	Yorkshires
Stuart, H., Burford	Yorkshires
Scott, Wm. P., Eramosa	Berkshires
Scott, R., Souris, Man.	Yorkshires
Stone Stock Co., The F. W., Guelph	Yorkshires
Silverthorn, A., Alloa	Yorkshires
Smith, J. C., Hintonburg	Berkshires
Shier, Byron, Mt. Albert	Yorkshires and Tamworths
Scott Bros., Darlingford, Man.	Berkshires
Shields, J. H., Milton	Yorkshires
Shearer, F. J., Vittoria	Berkshires
Stockton, H. M., Redgrave	Yorkshires
Symington, J. F., Willowbrook, Assa.	Yorkshires
Smith, D., Gladstone, Man.	Yorkshires
Squire, John, Oxley	Yorkshires
Silver, J. R., Danville, Que.	C. Whites
Shorritt, Wm., Seeburn, Man.	Yorkshires
Strachan, Chas., McKenzie, Man.	Yorkshires
Schooley, F. A., Sparta	Yorkshires
Stock, C. J., Tavistock	Yorkshires
Smith, J. C., Fairfield Plains.	P. Chinas
Smith, Geo. M., Hagersville.	Yorkshires
Smith, A. B., Moosomin, Assa.	Yorkshires
Spiers, Alex., New Floss	Yorkshires
Tape, W. N., Bentpath	Duroc Jerseys
Taylor, Geo., Rockwood	Yorkshires
Tran, Geo. J., Mongolia	Yorkshires
Taylor, Jno., Rockwood	Berkshires
Tran, W. R., Crystal City, Man.	Yorkshires
Teasdale, Thos., Concord	Berkshires
Terrill, A., Wooler	Yorkshires
Teasdale, Wm., Dollar	Berkshires
Thompson & Son, S. J., St. James, Man.	Berkshires
Thompson, Jos., Sardis, B.C.	Yorkshires and C. Whites
Thurston, C. W., Oak Heights	Yorkshires
Turner, Robt., Vernon River Bridge, P.E.I.	Yorkshires
Taylor, Robt., Goodwood	Yorkshires
Taylor, Wm. H., Fleming, Assa.	Yorkshires
Thompson, Wm., White Rose.	Yorkshires
Tuckwell, H. H., Gladstone, Man.	Yorkshires
Tufts & Son, Robt., Tweed	Yorkshires
Vance, R. & Sons, Ida	Berkshires
Vickerson, F., Lacombe, Alta.	Yorkshires
Vance, Edward, Emerson, Man.	Berkshires
Vassey, H. M., Ladner, B.C.	Yorkshires
Walker, J. C., Neepawa, Man.	Yorkshires
Watkins, Jno., Norval	Berkshires
Walter, Jas., Rosser, Man.	Berkshires and Yorkshires
Waghorn, T. G., Rapid City, Man.	Yorkshires
Walker, Chas., Beaconsfield.	Yorkshires
Watson, E. C., Holmfield, Man.	Berkshires
Walsh Bros., Babcock Hill, N.Y.	Yorkshires
Wilson, Wm., Snelgrove	Berkshires
Wiley, Nelson, Wisebach	Tamworths
Willis, R., Jr., Glen Meyer	P. Chinas
Willis, Amos, Glorrie	Yorkshires
Wright, W. E., Glanworth	C. Whites
Wilson, Alex., Moose Jaw, Assa.	Berkshires
Wilson, R. M., Maringhurst, Man.	Yorkshires
Wilson & Son, W. C., Hawkstone	Yorkshires
Wilson, W. S., Holland, Man.	Berkshires
Wilkinson, W. F., Clover Bar, Alta.	Yorkshires
Wilson & Son, Jas., Fergus.	Yorkshires
Watt & Son, J., Salem	Berkshires

Western Ontario Poultry Association.

ANNUAL MEETING.

The annual meeting of the Western Ontario Poultry Association was held in the Council Chamber of the City Hall, Guelph, on Thursday, December 10th, 1903, at 1.45 p.m., the President, Wm. McNeil, in the chair.

The minutes of the last meeting were taken as read.

The Secretary-Treasurer, Mr. A. P. Westervelt, read his financial statement for the year, which was received and approved by the Association.

RESOLUTIONS.

Mr. F. W. Hodson, Commissioner of Live Stock, Ottawa, and former Secretary of the Association, was unable to be present at the meeting owing to ill-health, and in view of that fact, it was moved by Mr. A. Bogue, and seconded by Mr. John Crowe, that a telegram be forwarded to Mr. Hodson, expressing the regret of the members of the Association that it was impossible for him to be present, and announcing his re-election to the office of Honorary President. Carried.

That the delegates to the Toronto Industrial Exhibition be instructed to use all their influence with the Board of that Exhibition, with the view to having the Poultry Exhibit confined to one week only. Carried.

The following motion was referred to the new Board of the Poultry Association: "That the Exhibition Committee be instructed to adopt a better system of allotting specials, so that they will not merely be additional regular prizes, but will indicate that the bird has beaten more than its own section."

The following motion by L. H. Baldwin was held over to be considered at the next meeting of the Association: "That, at future exhibitions of this Association, the name of the exhibitor be placed on the coops."

After the election of Officers and Directors the meeting adjourned.

OFFICERS FOR 1904.

Honorary President ..... F. W. HODSON, Ottawa.
President ..... WM. MCNEIL, London.
1st Vice-President ..... M. T. BURN, Tillsonburg.
2nd Vice-President ..... JOHN CROWE, Guelph.
Secretary-Treasurer ..... A. P. WESTERVELT.
Auditor ..... J. M. DUFF, Guelph.

Directors :

JAMES DUNDAS, Deer Park.
A. W. TYSON, Guelph.
G. G. HENDERSON, Hamilton.
T. SCOTT, St. Thomas.
JOHN RAMSAY, Owen Sound.
A. BOGUE, London.
J. W. KEDWELL, London.
W. R. GRAHAM, Guelph.
C. H. WILSON, East Oro.

Representatives to

Toronto Industrial ..... R. DURSTON, WM. MCNEIL.
Western Fair ..... J. H. SAUNDERS, W. H. BEATTIE.
Brantford Fair ..... J. H. MINSHALL, G. W. COLWELL.
Provincial Winter Fair ..... WM. MCNEIL, A. W. TYSON.

DIRECTORS' MEETING.

A meeting of the Directors was held immediately after the close of the Annual Meeting. It was decided to make classes for the following in the Prize List :—Rose Comb White Bantams; Muscovy Ducks.

FINANCIAL STATEMENT OF THE WESTERN ONTARIO POULTRY ASSOCIATION.

Receipts.

Cash on hand	$ 444.99
Legislative grant	1,000.00
Membership fees	245.00
Entry fees and scoring	1,259.50
Special cash prizes for show	246.90
	$3,196.39

Expenditures.

Prizes paid for Winter Fair	$1,913.65
Officers' salaries	200.00
Postage	40.00
Printing and advertising	101.54
Judges' fees and expenses	197.86
Coops and freight	247.45
Fees for poultry at Show	33.22
Superintendent and Assistants	67.00
Directors' expenses	51.25
Typewriting and reporting	5.00
Repairing coops	5.00
Badges	4.00
Auditor	10.00
	$2,875.97
Cash on hand	320.42
	$3,196.39

Audited and found correct.

(Signed) J. M. DUFF,
Auditor.

Guelph, Dec. 11, 1904.

MEMBERS OF WESTERN ONTARIO POULTRY ASSOCIATION, AND VARIETIES ENTERED,—1904.

Name and Address.	Breed.
Armstrong Bros. Fergus	Plymouth Rocks, Buff Cochins, Dressed Poultry.
Arthur, James, London	S.L. Wyandottes.
Andrews, F. A., London	White Plymouth Rocks.
Alexander, W. J., Ashgrove	White and Barred Plymouth Rocks, Blk. Wyandottes and S.C. Leghorns, Turkeys.
Bogue Bros., West London	Duckwing Bantams
Butler, W. H., London	Blk. Red Game.
Breck, H., Kingston	Houdans.
Bell, W. J., Angus	R.C. White Leghorns, Turkeys.
Blyth, A. C., Toronto	Light Brahmas.
Bolton, W., Guelph	Belgian Hares.
Burn, M. T., Tillsonburg	Blk. Cochins, Dominiques, A. O. S. V. Game, Japanese Bantams, Silver Polands, Houdans, Japanese Silkies, Geese, Ducks, Pigeons.
Biggar, W. H., Trafalgar	White and Barred Plymouth Rocks Buff Orpingtons.
Bunker, A., Toronto	Pigeons.
Bawden, John, Ridgetown	Buff Plymouth Rocks.
Brown, A. G., Watford	White Plymouth Rocks.
Beattie, W. H., Wilton Grove	Turkeys.
Bogue, Allan, London	Sil. Colored and White Dorkings, Polands, Geese and Ducks.
Bell, A. W., Toronto	Buff Cochins, Partridge Cochins.
Bartlett, Rev. S. T., Napanee	Buff Wyandottes.
Bush, Wm., St. Thomas	W.C.B. Polands,
Boyce, J. R., London	Buff Plymouth Rocks.
Barker, R. K., Toronto	Pigeons.
Builder, E., Dundas	S. C. White Leghorns.
Becker, H. F., Waterloo	S.C. Brown Leghorns.
Bessey, W. H., Coleman	Wht. Plymouth Rocks, Buff Orpingtons.
Barton, A. W., Toronto	Pigeons.
Barber, W. & Co., Toronto	Games and Game Bantams.
Bertie, Jas., Toronto	Pyle Bantams.
Bedford, J., Toronto	Buff Leghorns.
Barber, Victor, Toronto	Blk. Red Bantams, Pigeons.
Bogue, G. & J., Strathroy	Wyandottes, Dominiques, Javas, Sultans, Spanish, Red Caps, A.O.S.V. Game, La Fleche, Polands, Houdans, Creve Coeurs, Ducks.

MEMBERS OF WESTERN ONTARIO POULTRY ASSCCIATION AND VARIETIES ENTERED.—Continued.

Name and Address.	Breed.
Baptie, Jas., Springfield	Hamburgs, Black Bantams.
Boultbee, Alfred, Toronto	Buff Orpingtons.
Bell, Currier & Price, Toronto	Pyle Bantams, Pigeons.
Brierly, Geo., Guelph	Wht. Wyandottes, S.C. Leghorns.
Baker Bros., Guelph	Turkeys, Ducks.
Baldwin, L. H., Deer Park...	Wht. Wyandottes,
Bradley, Jno., Milton	Leghorns.
Campbell, W. J., Snelgrove ...	Barred Plymouth Rock Novice.
Cameron & Son, J., Ridgetown	Wht. Orpingtons.
Crowe, John, Guelph..... ...	Blk. Red Game.
Crowe, Chas. R., Guelph....	Blk. Red Bantams.
Copeland, Ezra, Rockwood...	G. Laced Wyandottes.
Clark, J. W., Onondaga.....	Plymouth Rocks.
Cornwall, Nate K., Thamesville	S. C. and Buff Leghorns.
Cosh, N., London	Barred Plymouth Rocks, Andalusians, Buff Orpingtons.
Cowan, J. D., Drumbo	Barred Novice Plymouth Rocks.
Colwell, Geo., Paris Station	Bantams, Geese, Ducks.
Cadman, Wm., St. Thomas .	R. C. Br. and S.C. Br. Leghorns. S.S. Hamburgs, Buff Orpingtons.
Cullen, D. S., Drumbo.... ..	Wht. Wyandottes, W.C.B. Polands,
Cassidy, C. V., Ailsa Craig...	Barred Plymouth Rocks.
Clark, Thos. F., St. Thomas	Sil. Grey Dorkings.
Colson, Jno., Guelph	Blk. Java, Ducks.
Clayfield, Thos., Conestogo ..	Silver Grey Dorkings.
Cutler, W. W., Welland	Buff Cochins, S.C. Br. Leghorns, Buff Orpingtons, Rabbits.
Carroll, J. A., London.....	Blk. Cochins, White Plymouth Rocks, Wht. Wyandotte, Indian Game.
Cook & Son, F., Midland.. ..	Rabbits.
Donovan, H. B., Toronto.. .	Bantams, Silkies, Pigeons.
Daniels, C. J., Toronto	Plymouth Rocks, Javas, Red Caps, Games, Orpingtons,
Doidge & McNeil, London ..	Buff Cochins.
Dunne, H., Toronto	White Minorcas.
Dinner, R., St. Thomas.... .	Wyandottes, Games.
Daly & Dill, Seaforth.....	Plymouth Rocks.
Dentonia Park Farm, Coleman.	Wyandottes, Leghorns, Ducks and Pheasants.
Denning, F. J., Toronto	Wyandottes.
Dundas, Jas., Deer Park.. ..	Wyandottes, Leghorns.
Dewey, E. J., Calgary, Alta...	Blk. Langshans.
Devitt, A., Berlin	Wyandottes.
Dewar Bros., Milton	S.C. Br. Leghorns.
Elliott, Geo., Welland..... .	Wht. Wyandottes.
Eidt, E. H., Stratford..	Wht. Wyandottes.
Emrick, Hy., Bridgeburg	Cochins, Bantams.
Ernst, J. J., Mount Forest	Plymouth Rocks.
Eliott, Andrew, Pond Mills..	Turkeys.
Fortier, V., St. Jerome, Que.	Bantams.
Ford & Son, Jas. Drumquin ..	Turkeys.
Fox, Wm., Toronto	Rabbits.
Finn, Thos., Toronto	Plymouth Rocks, Leghorns.
Fink, A., Woodstock	Dominiques.
Fidler, H. E., Brockville ..	Plymouth Rocks.
Fyfe, Geo., Gourock	Ducks.
Fullerton, W. J., Toronto ...	Leghorns.
Furminger, S. D., St. Catharines.	Bantams, Dorkings, Orpingtons. Ducks.
Farrel, M. F., Glencoe	Indian Game.
Frith, Dr. S. W. D., Winchester	Buff Orpingtons.
Foster, Jos., Brampton	Cochins, Plymouth Rocks, Leghorns, Hamburgs, Game, Dorkings.
Graham, R. & I., Guelph ..	Bantams.
Graham, A. W., St. Thomas	Wyandottes.
Gould, Peter, Guelph, Ont.....	Cochins, Spanish, Polands.
Goldie, Roswell, Guelph	Pheasants.
Grundy Bros., Guelph	Blk. Leghorns.
Glanville, Lloyd, S. London ..	Blk. Cochins.
Greig, Jas. B., Stratford	Buff Orpingtons.
Geoghegan, Rev. Thos, Hamilton	Light Grahmas.
Grier & Pratt, Owen Sound ..	S. C. White Leghorns.
Gofton & Daniel, Plattsville ..	Plymouth Rock, Wyandottes, Game.
Hoffman, H. A., Ridgetown ..	Orpingtons.
Hazelbrae Poultry Yards, Galetta.	White Plymouth Rocks.
Hamilton, John G., Galt	White Plymouth Rocks.
Harron, J. A., Berlin	Leghorns.
Hodgkin, F. W., Guelph	Canaries.
Hubert, Jos., St. Thomas .. .	A.O.V. Fowls.
Hughes, N. J., London.....	A.O.V. Fowls.
Henderson & Billings, St. Marys.	Leghorns, Spanish, Cross-Bred Chicks.
Hussey, J. E., Melbourne ..	Leghorns.
Hoover & Nighswander, Markham.	Brahmas. Wyandottes. Leghorns,
Henderson, G. G., Hamilton .	Leghorns.
Hamilton, Geo. C., Fergus ...	Wyandottes,
Hart & Grimoldby, Owen Sound.	Leghorns. Bantams.
Hugh, Wm. C., Port Hope ..	Wyandottes, Orpingtons, A.O.V. Fowls.
Hammill, Wm., Toronto	Bantams, Pigeons.
Henry, Robert, Guelph	Pigeons.
Hertel & Gibbon, Hanover...	Wyandottes, Leghorns.
Herner, M. C., Mannheim	Plymouth Rocks.
Hales, Ernest A., Guelph.....	Game, Cross Breds, Turkeys, Ducks.
Hall, Dr. R. J., Elmira	Plymouth Rocks,
Innes, John, Rockwood	Silkies, A. O. V. Fowls.
Johnston, Jas. A., Malvern ..	Geese, Ducks.
Jeffries, E., Toronto	Leghorns.
Knight, I. T.., Guelph	Plymouth Rocks, Ducks.
Kerr, Wm. K., East Toronto...	Orpingtons.
Kettlewell, N. T. London..... .	Wyandottes.
Kiley, T. J., Aylmer	Bantams, Cochins.
Krouse, F. W., Guelph	Plymouth Rocks, Orpingtons, Wyandottes.
Karn, J. H., Guelph..... .	Pigeons.
Kingsmill, T. F., Jr., London.	Wyandottes, Orpingtons.
Lugsdin & Woolley, Simcoe ..	Plymouth Rocks, Leghorns.
Laidlaw, J. R., Paisley	Leghorns.
Limpert, Orion, Hespeler	Leghorns.
Lockwood, W. N., Melbourne	Leghorns, Geese.

MEMBERS OF WESTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED.—Concluded.

Name and Address.	Breed.
Rose, Chas., Cornwall	Brahmas, Andalusians, Game.
xton, A. G. H., Milton.....	Dorkings, Turkeys, Geese, Ducks.
ng, Arthur A., Hamilton....	Bantams.
mon, W., Lynden	Wyandottes.
nro, H., Marden	Minorcas.
bebus & Son, Wm., Toronto.	Plymouth Rocks.
agill, J. H., Port Hope	Wyandottes, Pigeons.
assie, Chas., Port Hope ...	Wyandottes, Orpingtons, Pigeons.
ayhew, C. A., Thamesville	Minorcas.
llard, I. K., Dundas	Plymouth Rocks.
llard, R. B., London	Wyandottes.
artin, John S., Port Dover ..	Wyandottes.
nshall, J. H., Brantford ..	Minorcas.
orley, J., Milton	Game.
unro, W. Lorne, Simcoe....	Leghorns.
cGill, K., Eramosa..	Plymouth Rocks.
cNeil, Wm, London	Hamburgs, Bantams, Polands and Silkies.
cCabe, T. F., East Toronto.	Wyandottes.
cKee, Jas., Norwich	Dorkings.
cDonnell, F. P., Watford ...	Wyandottes, Leghorns, Minorcas.
cCormick, Jas., London ..	Plymouth Rocks.
cDougall & Son, A., Milton .	Turkeys, Geese, Ducks.
cCurdy, R., London	Langshans.
cCormick, Jas. M., Rockton.	Bantams, Dorkings, Ducks.
cKay, Josiah, Clachan	Plymouth Rocks, Orpingtons.
cKay, J. C., Georgetown....	Orpingtons. A.O.V. Fowls.
ixon, J. W., Woodbank ..	Wyandottes, Game.
iven, Dr. J. S., London ...	Orpingtons.
atchez Poultry Yards, Berlin	Plymouth Rocks.
iall, C. J., Toronto	Wyandottes, Dominiques.
antell, W. B., St. Jerome, Que.	Brahmas, Cochins, Polands.
ewlands, A., Galt	Wyandottes.
akley, Wm., Toronto	Barred Plymouth Rocks.
sborne, W. M., Brockville ...	Leghorns, Minorcas.
ke, R., London	Cochins, Wyandottes, Javas, Leghorns, Hamburgs, Bantams, Creve Coeur, La Fleche, Sultans,
r & Ferguson, Brantford....	Leghorns.
ke, Frank, St. Thomas	A.O.V. Fowls.
akwood Farm, Toronto	
ayer, W. J., Galt	Leghorns,
urser, John G., Cobourg....	Pigeons.
oole, Geo., Guelph	Wyandottes.
aine, Geo., Aldershot	Wyandottes.
ickard, J. J., Drumbo	Brahmas, Wyandottes.
etsch, John, Shakespeare .	Leghorns.
nilpot, Jas., Guelph..... .	Game, Bantams, Dorkings.
ollock, W.E., Norwich.....	Plymouth Rocks, Leghorns, Houdans,
ife, Wm, A., Hespeler	Leghorns.
idler, L., Guelph	Pigeons.
ogers, R., Hamilton	Bantams.
eid, W. H., Kingston	Javas, Game, Bantams, Pigeons.

Name and Address.	Breed.
Roos, P. H., Waterloo	Leghorns.
Reid, Chas. A., Goderich ..	Plymouth Rocks, Wyandottes, Leghorns, Andalusians.
Raymo, W. E., Waterloo.....	Bantams.
Readwin & Stefler, Guelph...	Brahmas, Cochins, Plymouth Rocks, Wyandottes, Leghorns, Dorkings, Ducks, Pigeons.
Rice, Thos., Whitby	Plymouth Rocks, Leghorns.
Stroh, M. H., Waterloo	Orpingtons.
Sloan, H., Guelph	Wyandottes.
Stockwell, C., London	Game, Houdans, Dressed Poultry.
Shea, T. M., Fergus	Geese, Ducks.
Sherlock, Thos., London	Game.
Shody, Daniel, St. Thomas ..	Plymouth Rocks.
Sage, L. C., London	Brahmas, Plymouth Rocks.
Scanlon Bros., Ennotville ..	Plymouth Rocks, Geese, Ducks.
Stuart, Jas., St. Thomas	Minorcas.
Scott, T. H., St. Thomas.....	Wyandottes,
Sherwood, W. O., Freeman ..	Wyandottes. Minorcas.
Spry & Mick, Toronto	Wyandottes.
Switzer, W. H., Mayfair.....	Plymouth Rocks, Orpingtons, Minorcas.
Spiers, E., Guelph	Bantams.
Starling, J. S., St. Catharines	Plymouth Rocks.
Slesson & Briggs, London ...	Langshans, Bantams.
Tilt, C. A. R., Doon	Brahmas, Langshans, Bantams, Geese, Ducks.
Tedford & Collar, Blenheim..	Wyandottes, Game.
Thompson, W. J., Guelph	Bantams, Silkies, Pigeons, Rabbits.
Tossy, Geo. A., Hamilton	Light Brahmas.
Trew, D. C., Lindsay.... .	Houdans.
Tolson, J. H., Melbourne	Plymouth Rocks, Leghorns, Orpingtons.
Teale, W. J., Guelph	Langshans, Game, Bantams.
Tozer, A., London	Cochins, Bantams.
Tyson & McMaster, Guelph..	Game, Bantams.
Urquhart, Don, Hamilton ...	Hamburgs.
Vance, Geo., Woodstock	Game.
Wilson, Wm., Guelph	Wyandottes.
Williams, J. F., London	Bantams.
Wilson & Son, W. C., Hawkstone.	Leghorns, Houdans.
Wood, J. W., jr., Clayton, N. Y.	Turkeys.
Walker, Jas., Fergus	Plymouth Rocks.
Wyatt & Son, H., London	Cochins, Bantams.
Wallace, H. H., London	Plymouth Rocks, Ducks.
Worth, W., Jr., St. Thomas	Minorcas.
Woodward, F. A., Toronto....	Pigeons.
Walker, Wm. R., Guelph ...	Light Brahmas.
Wray, F. E., London	Wyandottes.
Wray, R. W., London	Wyandottes.
Wales, F., Milton	Cochins, Leghorns, Orpingtons.
Wardell, Thos., Woodstock ..	Andalusians.
White, Geo J., Hamilton.....	Pigeons.
Woodhall, J. B., Thedford ..	Ducks, Pigeons.
Warrington, J. H., Cornwall..	Spanish, Hamburgs, Dorkings, Red Caps.
Wood, C. E., Freeman	Orpingtons.

Eastern Ontario Poultry Association.

ANNUAL MEETING.

The annual meeting of the Eastern Ontario Poultry Association was held March 10th, 1904, in the Imperial Building, Ottawa; President, F. H. Gisborne, in the chair.

It was moved, That the minutes of the previous annual meeting as printed in the annual report be adopted. Carried.

The Treasurer read the financial statement of the Association, which was adopted.

The Chairman then reported on the condition of the new building that was to have been completed in time for this show, and stated that by the next annual meeting a more substantial building would be erected than the present accommodation.

RESOLUTIONS.

That the judges for the next show of the Association be now appointed. Carried. Messrs. Sharp Butterfield and L. G. Jarvis were elected for poultry, C. H. Currier, Toronto, for pigeons, and Messrs. F. C. Hare, Ottawa, and W. R. Graham, Guelph, for dressed poultry.

That for the next show the score card system of judging be adopted.

Moved in amendment, that comparison judging be the system adopted for the next show, which, being voted upon, was lost, and the original motion carried.

It was then decided that additional judges would be required, and Messrs. N. Cosh, London, and Jos. Bennett, Toronto, were the two selected.

That the appointment of substitute judges be left in the hands of the Executive. Carried.

That the present prize list be amended as follows: That each of the sections representing the several varieties of Fowls and Bantams be sub-divided into four sub-sections, to be known as sub-section A, B, C, and D, representing respectively Cocks, Hens, Cockerels and Pullets. And that in all Poultry sub-sections where entries number 12 to 15, four prizes be given, namely: 1st, $3; 2nd, $2; 3rd, $1.50, and 4th, $1; and that in all Poultry sub-sections where entries number 17 or over, five prizes be given, namely: 1st, $4; 2nd, $3; 3rd, $2; 4th, $1.50; 5th, $1.

It was then decided to divide the Orpington class into Buff and Any Other Variety. Also Silver and Golden Pencilled Hamburgs to be divided into Silver Pencilled Hamburgs and Golden Pencilled Hamburgs, and that a class for "Any Other Variety French, other than Houdans," be added. A class was added for "Any Other Variety Wyandottes."

That a class for White Polands be added, which was lost. Black and White Cochin Bantams were divided into Black Cochin Bantams and White Cochin Bantams.

The President explained that the wooden coops belonging to the Association were stored in one of the fair buildings, and that the value of them was deteriorating, and he advised the Association to dispose of them.

That the wooden coops should be sold by the directors to the best advantage.

That the class for White Polands be reconsidered, and it was decided that a class for them should be provided.

That the Pigeon list as used by the Western Ontario Poultry Association be adopted for the Eastern Association. Carried.

That a clause be inserted in the By-laws of the Association making F. H. Gisborne a life member of this Association. Carried.

A paper was read by H. B. Donovan of Toronto on the excessive express rates charged poultry men on shipments of their stock.

That the Association endorses the paper read by Mr. Donovan, and that the National Live Stock Convention take steps to have the matter taken up with the proper express authorities. Carried.

Mr. G. H. Higman then explained that the date of the show was at least three weeks too late, as it prevented many from exhibiting that otherwise would have done so, and it was decided to ask the Live Stock Department of the Eastern Ontario Live Stock and Poultry Show to arrange, if possible, for an earlier date for the Show.

The meeting then adjourned.

OFFICERS FOR 1904.

Honorary President.....F. H. GISBORNE, Ottawa.
President.....O. E. CULBERT, Ottawa.
1st Vice-President.....W. H. REID, Kingston.
2nd Vice-President.....GEO. HIGMAN, Ottawa.
Secretary-Treasurer.....A. P. WESTERVELT, Toronto.

Directors :

Division No. 1.....J. H. WARRINGTON, Cornwall.
" 2.....F. J. BLAKE, Almonte.
" 3.....W. M. OSBORNE, Brockville.
" 4.....W. F. GARLAND, Hintonburg.
" 5.....S. SHORT, Ottawa.
" 6.....C. J. DANIELS, Toronto.
" 7.....F. C. HARE, Ottawa.

Representatives to Fairs and Exhibitions :

Toronto Exhibition.....C. J. DANIELS, Toronto.
" .....A. J. GILBERT, Ottawa.
Ottawa Exhibition.....O. E. CULBERT, Ottawa.
" .....F. H. GISBORNE, Ottawa.
Winter Fair, Ottawa.....O. E. CULBERT, Ottawa.
" .....F. J. BLAKE, Almonte.
" .....GEO. HIGMAN, Ottawa.
Live Stock Association.....F. H. GISBORNE, Ottawa.
" .....O. E. CULBERT, Ottawa.
Auditor—J. M. DUFF, Guelph.
Superintendent—R. E. MCKINSTREY, Ottawa.

FINANCIAL STATEMENT OF THE EASTERN ONTARIO POULTRY ASSOCIATION.

RECEIPTS.

Cash on hand	$1,040.08
Members' fees	96.00
Legislative grant	1,000.00
Entry fees	572.00
Scoring fees	4.60
Amount over-paid on wages act.	10.00
	$2,722.68

EXPENDITURES.

Cash paid for prizes	$1,395.00
Officers' salaries	200.00
Printing	47.00
Advertising	15.00
Judges' expenses	94.85
Freight and express on coops	63.51
Superintendents and assistants	162.30
Judges' clerks	13.50
Refund entry fees	11.50
Feed for poultry at Show	35.68
Typewriting and office expenses	19.58
Drinking cups for coops	6.55
By cash on hand	658.21
	$2,722.68

Audited and found correct.

J. M. DUFF, Auditor.

FRANCIS H. GISBORNE, President.
A. P. WESTERVELT, Secretary-Treasurer.

MEMBERS OF EASTERN ONTARIO POULTRY ASSOCIATION, AND VARIETIES ENTERED,—1904.

Name and Address.	Breed.
Andrews, F. A., London ...	White Plymouth Rocks.
Annand, W. J., Ottawa	Barred Plymouth Rocks.
Allan, Jos. S., South March..	Buff Orpingtons, Buff Cochins.
Allen, J O., Ottawa	Buff Leghorns.
Armstrong Bros., Fergus .. .	Dressed Poultry, Turkeys, Geese and Ducks.
Belford, John A., Ottawa	Light Brahmas.
Burrmount, Pigeon Lofts, Ottawa	Pigeons.
Bastien, J. H., Rigaud, Que.	Game, Hamburgs, Polands, Houdans.
Benjamin, E. H., Ottawa ...	Pit Game.
Barber, Wm., Toronto	Game, Bantams.
Bartlett, Rev. S. T., Napanee.	Buff Wyandottes.
Blake, F. J., Almonte	Wyandottes.
Bate, L. A., Ottawa	S.C. White Leghorns.
Barber, V., Toronto	Blk. Red Bantams, Pigeons.
Barker, R. K., Toronto	Pigeons.
Bogue, G. & J., Strathroy ..	Cochins, Wyandottes, Javas, Poland, Spanish, Br. Leghorns, Game, Houdans, Red Caps, A.O.V. Fowl, Ducks,
Bessey, W. H., Coleman	White Plymouth Rocks.
Bell, A. W., Toronto	Buff Cochins.
Brown, Luke, Tackaberry Ave, Ottawa	
Beaumont, A., 19 3rd ave., Ottawa..	
Black, J M, Ottawa	
Bayley, G A., Ottawa.....	
Bristol, J. R. H., Ottawa ..	
Craig, Geo., Gladstone ave., Ottawa	
Charlton, W. H., Ottawa	S. C. White Leghorns.
Cumming, D., Russell.....	Light Brahmas, Plymouth Rocks, Geese, Ducks, Spanish, Leghorns, Game, Turkeys.
Culbert, O. E., Ottawa.. ...	White Wyandottes.
Chunnick, F., Napanee	Orpingtons.
Currier, C H., Toronto	Pigeons.
Delcorde, A., Ottawa	Langshans, Rhode Island Reds, Minorcas, Pigeons.
Dalgleish, J. A., Ottawa.....	Golden Wyandottes.
Depres, A. C., Hull, Que.....	Buff Cochins.
Daniels, C. J., Toronto	Orpingtons, Wyandottes, Javas, Red Caps, A.O.S.V. Fowl.
Degroff, Geo., Napanee	Orpingtons.
Deparey, W. 22 3rd ave., Ottawa	
Devlin, C. J., 42 Turner ave, Ottawa	
Dewey, E. J., Calgary, Alta.	
Donovan, H. B., 24 Victoria st., Toronto	
Deslauriers, L. F., Ottawa..	Buff Leghorns.
Ellis, W., Prescott ..., ...	Dorkings, Minorcas.
Fallis, R., Ottawa	Wyandottes.
Fortier, V., Ottawa	Bantams.

Name and Address.	Breed.
Foisy, T., Ottawa	Leghorns, Bantams.
Fidler, J. E., Brockville	Barred Plymouth Rocks.
Frith, S. W. D., Winchester..	Orpingtons.
Gromoll, E., Ottawa	S. C. White Leghorns.
Gisborne, F. H., Ottawa.....	Buff Cochins.
Green, Fred. C., Ottawa ..	
Gilbert, A. G., Ottawa	
Hodson, R., Ottawa	Blk. Red Bantams,
Hellyer, A. W. E., Ottawa.....	Orpingtons.
Higman, George, Ottawa .. .	Wyandottes.
Hazelbrae Poultry Yards, Galetta	Plymouth Rocks.
Hugh, Walter, Port Hope ..	A.O.S.V. Fowls.
Hintonburg Poultry Yards, Hintonburg	Partridge Cochins.
Hughes, W. C., Port Hope..	Orpingtons.
Henderson & Billings, St. Marys	Leghorns.
James, F. A., Ottawa	Barred Plymouth Rocks.
Lambertus, J. A., Eganville	Barred Plymouth Rocks.
Leitch, H. D., St. Elmo	Orpingtons.
LaRose, C., Cornwall	Light Brahmas, Andalusians.
Laderoute, F. X., 174 Bank st., Ottawa	Barred Plymouth Rock, Game, Bantams.
Lyle, Alex., Adelaide st., Ottawa	
Mathison, S., Ottawa	Pigeons.
Magill, J. H., Port Hope.....	Golden Wyandottes, Pigeons.
McInnes, G. A., Prescott	Blk. Minorcas.
McCabe, F. F., East Toronto	Buff Wyandottes.
McNeil, Wm., London	Hamburgs, Polands, Bantams, Turkeys, A.O.S.V. Fowls.
MacKay, R., Hamilton	Barred Plymouth Rocks.
McCormack, Geo. F., Ottawa	Wht. Wyandottes.
McGurran, Jas., Ottawa	S. C. White Leghorns.
Nantel, W. B., St. Jerome, Que.	Brahmas, Cochins, Polands, Bantams, Turkeys,
Osborne, W. M., Brockville	Minorcas, Leghorns.
Ottawa Magpie Lofts, Ottawa....	Pigeons.
Ottawa Pigeon Lofts, Ottawa	Pigeons.
Oke, R., London	Cochins, Javas, Leghorns, Hamburgs, A.O.S.V. Fowls, Bantams
Player, W. J., Galt	Br. Leghorns.
Pritchard, J. A., N. Wakefield.	Brahmas, Cochins, Game, Plymouth Rocks.
Plante, W., Ottawa	Wyandottes, Bantams, Pigeons.
Pillar, C., Russell	Plymouth Rocks, Bantams.
Parker, Alex., 2nd ave., Ottawa	
Robertson, R. A., Ottawa ...	Buff Orpingtons.
Richardson, J. A., South March	Geese.
Rook Bros., Prescott	Bantams.

MEMBERS OF EASTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES EXHIBITED —Concluded.

Name and Address.	Breed.
Reid, W. H., Kingston	Cochins, Javas, Game, Ducks, Red Caps, Pigeons, Hamburgs, Polands, Bantams.
Readwin, A. & T., Guelph...	Cochins, Dorkings, Wyandottes, Leghorns, Ducks, Pigeons.
Slessor, W. J., London	Langshans, Bantams.
Snelling, W. H., Ottawa ..	Orpingtons.
Short, S., Ottawa	Plymouth Rocks. Wyandottes.
Stewart & Son, W., Menie....	Dorkings, Leghorns, Game, Hamburgs, Bantams, Turkeys, Ducks,
Strang, Robert, Ottawa	Pigeons.
Sage, L. C., London	Dark Brahmas, Leghorns.
Stein, Wm., Patterson ave., Ottawa	
Thomas, Geo., Ottawa	Pigeons, Guinea Pigs.
Thompson, A., Allan's Corners, Que.	Turkeys, Geese, Ducks.
Tyson & McMaster, Guelph..	Game, Bantams.
Williams, J. H., Ottawa	Buff Cochins.
Wallace, Wm., Ottawa	Blk. Minorcas.
Watson, J., Perth	Orpingtons, Barred Plymouth Rocks.
Wales, F., Milton.....	Lt. Brahmas, Cochins, Plymouth Rocks, Wyandottes, Leghorns, Game, Turkeys, Geese, Ducks.
Wagner, C. F., Toronto	Pigeons.
Wardell, T., Woodstock	Andalusians.
Warrington, J. H., Cornwall..	Dorkings, Spanish, Game, Red Caps.
White, George J., Hamilton..	Bantams.
Woodward, F. A., Toronto ...	Pigeons.
Name and Address.	Breed.

The Provincial Winter Fair.

PUBLIC MEETING.

The public meeting in connection with the Ontario Winter Fair was held in the City Hall, Guelph, on Wednesday evening, December 9th. The attendance was unprecedently large, every inch of space occupied, and many were unable to gain admission. The excellent musical programme provided by Captain T. E. Robson added greatly to the enjoyment and success of the evening.

The chair was taken at eight o'clock by Hon. John Dryden, Minister of Agriculture, and the proceedings opened with an appropriate address from Mayor Hamilton, who officially tendered the welcome of the city of Guelph to all who were in attendance at the Winter Fair. Complaint, he said, had been made that insufficient accommodation was provided for visitors, and, although this was true to some extent in the past, this year a thorough canvass had been made of the private homes in the city, in order to learn of all who could accommodate visitors. He could assure everyone, that, in future, no difficulty would be met with in obtaining comfortable quarters, if not at the hotels, then in the homes of the citizens.

Mr. J. P. Downey, M.P.P., on being called upon, said, after thanking the officers of the Associations for the honor extended to him, that no words of his could adequately express the sincerity and heartiness of the welcome which the people of Guelph desired to extend. Guelph, he said, was the only city in the Dominion, or, in fact, in the British Empire, called after the Royal House. It was founded, as many knew, by the great historian and explorer, John Galt, in 1827. Exhibitions of live stock had been held in the city since 1865, first in the open air, then in a hotel stable, and afterwards in the drill hall. The men who were identified with the enterprise in the early days labored persistently to develop it, and much of the credit for the present show was due to their efforts. Finally, the Provincial Government wisely took hold of it, and it had developed into the great progressive Winter Fair now being held. He knew of no better greeting to those who had come among them than the old Southern one—"All of you walk right in, sit down, and make yourselves at home."

Mr. Hugh Guthrie, M.P.P., said that he hardly knew how to improve on the welcome already extended. "What we have, you hold," conveyed the sentiment of the citizens. At the outset, no one had imagined that the show would reach such magnificent proportions; the magnitude of its success had been somewhat of a surprise to all concerned. The strong Canadian sentiment in evidence at such gatherings as this was something that all might be proud of. The day had gone by when we spoke of ourselves as being Englishmen, Scotchmen, Irishmen and Germans; all were now Canadians. As Canadians we placed utter dependence in our country. With the growth of this sentiment our self-respect had increased. He objected, he said, to the question asked by the Census enumerators as to whether a man was of English, Scotch or Irish descent. It was true, he himself was of Scotch descent, but why should he be put down as a Scotch Canadian instead of a Canadian alone? When the next census was taken, provision should be made for a pure Canadian class.

In his welcome, Mr. Guthrie said that he wished specially to include any American visitors who were present; they would have an opportunity of seeing what we had to produce in this country. As evidenced by the successes at Chicago and other places, the Canadian agriculturist was not to be despised. Canada was on the most friendly terms with the great nation to the south; sometimes he thought we were disposed to be more friendly towards them than they were towards us. But the day had passed, he was glad to say, when we had to knock and knock for admission to their markets; when next the knocking came, it would be from the other side of the wall. There was a time, ten or eleven years ago, when the outlook was anything but prosperous in Canada. Some considered the

Dingley tariff a staggering blow; but the men of Canada were the men of the North—men of heart, men of muscle, men of brains,—who when shut out of one market prepared themselves for other markets. After carefully studying the facts and conditions, they had taken advantage of another market three thousand miles away, where they were to-day successfully competing with their American rivals. This fact had increased the feeling of independence and confidence which they had in themselves as Canadians. When statements were made like the recent utterance of Senator Lodge, who said that "The United States had sent the British flag back to Europe, and all other flags must go back some day," it neither frightened us nor checked our independent spirit, and come what might, Canada would remain under its present political conditions. But while we believed in Canada, and were going to maintain our country and its institutions, we were not ungrateful to the past, and looked still with loving reverence to the old Old Land, three thousand miles away, from which we had sprung.

ADDRESS.

By Hon. John Dryden, Minister of Agriculture, Toronto.

In his opening remarks Mr. Dryden said that during the afternoon they had been discussing feeding rations in the lecture room, and his head had been filled with ratios of one to six, one to eight, and one to four. His address this evening would be in the ratio of one to three, as he was the only one to respond to the three gentlemen who had preceded him with such eloquent addresses of welcome. He continued: This Winter Fair has gained in usefulness and importance in this country because of the fact that we have had prepared for us here in this city of Guelph the equipment necessary in order that we might accomplish the work we have in hand. We tried the perambulating system, taking the Fair to different places each year, and although we did our best to work it out, we found that it could not be done successfully. We found that we needed special equipment, and special buildings in which we could bring our animals together, and where we could have a lecture room to discuss them, as we have here. It was at this stage that the city of Guelph came forward most nobly, and as long as I live I shall feel grateful to the people of this city because at the time of need they were willing to come to the rescue, and give of their means, supplemented by the money of the Province, in order that we might have here the building in which this Fair is held. They enabled us to accomplish what has been done in no other city on this continent. I heard a gentleman say at the College last night that that institution deserved great credit because it had done a great many things it had not been asked to do. The live-stock men of this country have been doing right here what no one had seemed to think of before. Not only do exhibitors bring their animals together from all over the country to enter into competition and determine which are the best, but we go a step further and endeavor to show why this or that animal is superior to its competitors. Our public men are boasting at the present time of what is being done in the bacon trade in this country, and say that it is because we have a good government. I am willing to admit that we have a good government; perhaps some of you are not; but I should like to say in the presence of some of our public men who are here to-night, that this Winter Fair has had more to do with the development of the bacon trade than has the Government. It is here that we have set the type, have fixed the conditions, have told the people what they must produce in order to secure this great trade with the Old Country; and the best of it is that we have succeeded in obtaining it. It is a great thing to be able to go into this show and see the live animals, and have the judges pick them out and classify them, and then be able to go into the killing room to-morrow and see whether what was told us about them when alive is borne out by the appearance of the carcasses, and so ascertain whether they know when they look at a live animal, how it will turn out when it is killed.

We are making rapid progress in this country in regard to the production of the bacon type of hog. Every Monday morning when I leave my farm and go to the train, I see wagon load after wagon load of hogs that are uniformly of the bacon type. It is the same pretty much all over the country. How has this been brought about? By the education supplied here and carried all over the country by the Farmers' Institute speakers. The result is that the people are acting together as one man in this thing; and if they will hold together, and take advantage of the opportunities that come within their reach, and seize the education offered in this respect, there is no country that can beat us in the English market or in any other market. (Applause.) I never was prouder of the farmers of this country than at the present moment. I have just returned from the United States, and have seen the grandeur and greatness of that country. If you go to the International Live Stock Exposition in Chicago, you cannot help being carried away with its immensity ; but if you go among the farmers there and talk with them, you will find that, man for man, they will not begin to compare with the farmers of our own country. It is not for me to give the reason ; I am only stating a fact. I want, therefore, to encourage you. I am not saying this boastingly ; I only feel grateful that it is so. I do not want to see the name of Canada dragged in the dust because we are lagging behind in our agricultural products ; I want the name of Canada to be upheld. It is the men from our farms who will in years to come make Canada known the world over for the superiority of its agricultural products. (Applause.)

This exhibition is like a great light set upon a hill, and the men from the east and the west, the north and the south are coming together and kindling their own little torches at this light which we have set up here. Then they go back to their farms, and the information they have secured results not merely in gain for themselves, but it spreads among their neighbors and benefits them as well. That day has gone by when we shut ourselves up and reply when asked by our neighbor how we did this or that, "I will not tell you." Now we say, "I will tell you how to do it ; I will show you the way it is done." I have often said to the boys of the College, and to every young man who has come to me for advice, "If there is anything I know which you do not know, you shall have it and welcome. After that, if you can beat me at it, you shall have all the more credit ; it will not hurt me ; it will help me every time." If we can cultivate this spirit of unselfishness, and stand together as one man, we are certain to be successful in our calling in this noble country.

We have a great country for the production of these special lines to which we are devoting so much attention just now. What I like about this Fair is that it brings us closer together, and fills us with enthusiasm, which lasts us till we come back again a year hence to gain a fresh supply.

ADDRESS.

By Dr. Geo. Rutherford, Chief of the Veterinary Department, Ottawa.

Ever since I came here in 1875, as a callow young Scotchman, to be one of the first seventeen students at the Agricultural College, I have had a warm spot in my heart for Guelph. You will better understand that when I say that it was here in Guelph that I first fell in love—in love with Canada. My friend, Mr. Guthrie, said how proud he was to be a native born Canadian. There is only one thing a little better than being born in Canada, and that is to be born in Scotland, and come over here and become so proud of the country as to call one's self a Canadian. When I first came here, I did not have any such reception as this, and there was no one to make nice speeches ; but I very well remember that the cabman charged $2 to drive me out to the Model Farm. In those days the College was not much of a place ; it was rather raw and new, and it encountered a great deal of ridicule, which I am glad to see it has entirely outlived. Then the students were pointed at and hooted at ; to-day it has developed into the most famous insti-

tution of its kind in the whole world. I know a little about what I am speaking, and I maintain that there is not another institution devoted to the teaching of agricultural science that is on anything like the same sound, solid foundation for teaching ability as is the Agricultural College at Guelph. The College has not only made itself a reputation, but it has made a vast difference to the agriculture of the Province, and, in a less degree, to the agriculture of the other Provinces of the Dominion. I was in Manitoba for a great many years, and on my return I was more than delighted to see the great advance that had taken place in the agriculture of Ontario resulting from better methods. I think that a great deal of that development is due to the men I see before me to-night. I look upon the stockmen as the salt of the earth as regards agriculture. There is no question about it, you cannot have any kind of a farm without live stock. Without it farming does not amount to much. The wheat-grower is continually robbing and exhausting the soil. Behind him comes the stock man, who is putting back plant food, until finally the land is restored to its former condition, and he only is the true farmer. They are finding that out in the West, and the Western farmers are beginning to go in for stock, to our gain.

No Canadian, no human being, can speak or think too highly of the men who are devoting their time and energy—their lives, in fact—to the development of the live stock industry. Some of you will remember the old fat stock shows that were held here in Guelph in days gone by. If you remember how crude they were, you will realize what immense strides have been made. When I was at the Bow Park Farm, where I served my apprenticeship after I left Guelph, we thought we had the very finest cattle in the world, including, as the herd did in those days, "4th Duke of Clarence," and other equally good animals, yet they would not compare with the type of Shorthorn that is at the top to-day. But our animals are not yet perfect, and development is still going on. In twenty years from now, perhaps, we shall see improvements quite as marked as those that have been brought about in the past twenty. Bates, Booth, and Amos Cruickshank all thought they had reached perfection, but Willis is now beating Cruickshank, and so it goes on. Too much credit cannot be given to the Old Country breeders, but a good deal has been done in Canada, and there is much more to be done.

I think that one of the great points in Canada is the advantage that comes to this country from the diversity of race, and the difference in locality. A man from the North of England comes here and goes in for Shorthorns; the man from the South goes in for Herefords or Devons; Col. McCrae and his father went in for Galloways; every man to his taste. I am satisfied that there is a great future before this country. I am satisfied that the agriculture of Canada is yet in its infancy. There is no loss—no national loss—so great as that which comes to a country through lack of knowledge of scientific agriculture. The Agricultural College, the Farmers' Institutes, and meetings, such as those held here, are doing their share in promoting this knowledge. You go away from here with new information and ideas, and as a result, as time goes on, improvement becomes apparent.

The question of the cattle embargo has been discussed a great deal in this country, and a great deal has been said that need not have been said. The Scotchman takes an entirely different view of the matter to what the Canadian does. He wants our lean cattle, and wants to have the opportunity of feeding them—in many cases on our grain—and to make a profit on them. There is no reason that I can see why we should not finish our own cattle on our own grain. It seems to me it is the only sound, sensible policy for us, and keep the gain the Scotchman wants to get. The Scotch are a peculiar people—they are God's own peculiar people. The Scotchman is not, generally speaking, a philanthropist, except as regards himself and his own immediate family. When Scotchmen are getting up all over the country and talking about the terrible injustice done Canadian cattle, it is not so much the injustice they feel as the thought that there would be a better opportunity for them to make a few extra dollars if they had the cattle to feed. I fancy the day will soon come when we shall market our own cattle.

There is a great deal in knowing how to buy, and a great deal in knowing how and where and what to sell. There are a great many cattle sold in Canada—I know there are in the West—away below their value, where the middleman takes the big end of the profit. This will not be remedied until we have a dead meat trade thoroughly developed as a second string to our bow. Hon. Mr. Fisher mentioned this matter last year. I think it is most important that we should have that trade developed, and that something should be done by those interested and by the authorities to develop that trade.

I do not wish that anything I have said to-night should be construed into an expression of opinion that we have not been most unjustly dealt with by the British Board of Agriculture in connection with the cattle embargo, in so far as the exclusion of our cattle was based on the foundationless rumor that a certain disease existed in this country. Although the admission has been made by the British Minister of Agriculture that there was no such disease here, still they have never made the admission that they made a mistake. There is no doubt that the British Board of Agriculture claimed in 1892 that we had pleuro-pneumonia in this country, and based the exclusion of our cattle on that fact. To-day it simply makes the statement that the disease, which is one of the most highly infectious diseases in the world, has totally disappeared from Canada of its own accord, whereas it never appeared in any country without costing millions of dollars to stamp it out. You will see, therefore, the position in which the Board has placed itself; and the injury will never be righted until the Board admits that its experts were utterly wrong in their diagnosis in 1892.

In conclusion, I want to urge upon Canadians to develop their own country. If there is any money to be made, I want to see Canadians make it. If you have a boy or two to spare, let them go to the West; do not let the whole of that country go to the Armenians, and Galicians, etc. I want to see enough Canadians go into that country to keep the national feeling alive. They talk about these people making good settlers; I lived for twenty years in Manitoba, and can say emphatically that the best settler in Manitoba is the man from Ontario, who goes up there with his level head and sound common sense and keeps the moral tone of the community right.

ADDRESS.

By Dr. James Mills, President Agricultural College, Guelph.

Dr. Rutherford spoke appreciatively of the progress made in agriculture in this Province. To thinking and observing Canadians there is nothing more manifest than the improvement that has taken place in this respect during the last seven or eight years. The output of our farms has increased beyond our most sanguine expectations. In 1893 we reached the bottom of our agricultural depression, and I am going, therefore, to contrast the figures for that year with those of 1903; in 1903 the value of animals and their products exported by the Dominion was $31,736,499; in 1903 it was $69,817,542. In 1893 the value of other farm products was $22,049,490; in 1903 it was $44,000,000. Our exports of butter in 1893 were valued at $1,296,000; in 1903, at $7,000,000; cheese, in 1893, $13,500,000; in 1903, nearly twenty-five million dollars' worth; eggs, in 1893, $868,000; in 1903, $1,436,000; grain, in 1893, $13,000000; in 1903 $29,000,000; bacon hogs, in 1893, $1,970,000; in 1903, $15,906,000.

That shows the rapid increase in the output. No less striking is the greatly increased interest in agriculture in this country. First, the farmers themselves are beginning to realize something of the importance and dignity of their occupation. I have met more farmers in the last ten or fifteen years than any other person in the Dominion, and I think I am, therefore, in a position to judge. Not only is the interest in agriculture increasing among the farmers, but in all other classes of the community. People engaged in other callings think more of farmers and farming than they did ten or fifteen years ago. Our farmers themselves are more intelligent and more refined than they were in the past;

they have attained a higher standard of technical knowledge; they live better, dress better, look better—a good deal better—than they did fifteen years ago. I am very glad to see this; and I do not think you need any longer apologise for being farmers.

When I meet such a gathering as this, I begin to say: These are our people—the people of the Agricultural College. I realize that you have begun to look upon that institution as yours; it was not always so; and we are glad to have your sympathy and support independent of political considerations. There are many causes for this advance. I could think of a dozen, but I do not need to mention them.

You will admit with me, gentlemen of town, city, and country alike, that the foundation of the State is the home. The main factor in the home is the woman in charge of it. There is no doubt about that. It is the mother who has the grip on the boys and girls who are going out into the various walks of life. Therefore, if we can do anything to aid the women of the home, we shall be doing a great thing for the country. A good mother means fine boys and girls, who will be a power for good in this land. The need for helping the women in the home is one of the greatest needs of this country. Sir William Macdonald of Montreal realized this when he placed $175,000 in my hands to be used in erecting the building known as the Macdonald Institute, and in furnishing instruction in Nature Study, Domestic Science and Manual Training; and another building as a residence for the young women who attend. At that institution our most important department is that of Home Economics; some call it Domestic Science. It is divided into two branches: first, Domestic Science, including cooking, laundry work and general housekeeping; and second, what we call Domestic Art, which includes sewing, dressmaking, millinery and home decoration. In one wing of the building we teach cooking and serving; the other wing is laid out in apartments. These apartments contain a kitchen, a dining and a living room a small bathroom and two bedrooms. Each student who takes the Domestic Science course will be required to manage one of these departments for a short period. She will go to Guelph and buy the food, cook it and serve it to those who board there; look after the rooms properly, and run it as an independent establishment. Some of the officers will board there regularly. The Lady Principal will live in these apartments, and will mark the efficiency of each student in turn.

Under our school system, too, much of a girl's time is taken up in studying algebra and euclid, when they should be learning to cook and keep house, as that is what the majority of our girls have to do when they grow up. The result is that they have no time to learn housekeeping from their mothers; they must get their certificate first. The result often is that they marry, and have to go to housekeeping without any experience; and I am sorry for the woman who has to learn housekeeping in the presence of her husband. I think that those who control our Public Schools should give this matter some consideration. I am not maintaining that girls should have any less general training in the elementary and higher branches of education, but I think this might be amply provided for and yet leave time for fitting our noble girls for the care of the home.

ADDRESS.

By Col. W. B. Ferguson, Pictston Hill, Perthshire, Scotland.

It is a great pleasure to me to be here to-night, and to have this opportunity of visiting the Ontario Winter Fair. I have heard a great many things since I came here that have been very instructive to me; I have seen the enthusiasm that the agriculturists of this country take in everything they do; I have seen to-day at the lectures that you take a more serious view of agricultural education than we do. I have been at Guelph before, and I know the value of the College. I have also been to the North-West, and take a lively interest in that great country. You have unlimited space there for agriculture. When I went home and lectured to our young farmers, who have good hands, and fairly good brains, and a litttle money, I told them that Western Canada was the place for them if they wanted to make their way in the world.

I should like to give you a few of the impressions I have formed of your show. I would say that the stock shown there compares favorably with that of any show of the same kind in the Old Country. I think I may say that, taken all in all, the beef animals exhibited here would stand equally well with those exhibited at any show in Great Britain of the same kind, while in pigs and poultry you would probably beat us. I shall be obliged to tell our people they are away in the rear as regards poultry.

In one thing we are probably further advanced, and that is in the study of the block test. We have studied that carefully for a number of years, and with us a man is not considered a good judge unless he can judge an animal both alive and dead.

I think you are more advanced in dairy science than we are, and that I am correct in saying that we have been taking pointers from Canada in this respect during the last three or four years.

Dr. Rutherford mentioned the cattle embargo, and is free to do so, because he belongs to the Dominion Department of Agriculture. I am not able to speak on behalf of the British Board of Agriculture, but I do know the feeling of the community in which I live, and I would warn you not to be misled by irresponsible individuals who come over here and talk about the embargo. The truth is that three-quarters of the farmers of Great Britain are opposed to admitting cattle from this country. I don't know why it is; I am merely stating a fact. We are trying to induce the British farmer to raise his own grain and feed it to his own cattle. The British farmer is beginning to be an unskilful man, and does not attend to his business as well as he did. You know that it is a more difficult matter to mature animals than to go to the market and buy them, and a great many men are doing that. Without discussing the merits of the case, I may say that those who are the backbone of British agriculture are of the opinion that anything we can do to induce the British farmer to breed more and better cattle will be to the advantage of British agriculture.

LECTURES ON PRACTICAL SUBJECTS DELIVERED IN THE LECTURE ROOM IN THE WINTER FAIR BUILDING, GUELPH.

THE PROPER TYPE OF FOWL FOR FATTENING AND WINTER LAYING.

By F. C. Hare, Chief of the Poultry Division, Dominion Department of Agriculture.

Before Mr. Hare displayed the lantern views to illustrate his address on the proper type of fowl for fattening and winter laying, he delivered a practical talk in regard to specimens of Barred and White Plymouth Rocks, White and Silver Wyandottes, Buff Orpingtons, and Silver Grey Dorkings that he presented. He named the required type of fowl the utility-type, to differentiate it from the standard-bred fowl. The specimens of the different breeds he exhibited were examples of the utility type. They were of similar conformation and weight, and Mr. Hare said if the feathers, head and feet were removed the bodies would be similar in shape. The utility-type fowl is of medium weight—male birds seven to eight and one-half pounds, females five and one-half to seven pounds—broad, blocky and long in shape and short on leg. This type of fowl is present in all the above breeds. The selection of the breeds depends on the taste of the farmer, and is of no special importance; the selection and the breeding from the utility-type fowls of the breed is most necessary and importa t. An objectionable type of fowl is one that is long in leg and of narrow breast. Such a type it is impossible to fatten profitably in the crates. Too many farmers are rearing narrow-breasted, upstanding Plymouth Rocks. The Dorking type might well be adopted. It is the market fowl of Great Britain. The Dorking has a remarkably long, plump breast, and fattens readily.

Q.: All the breeds seem to be short in the back except the Dorking; how do you get a long breast with a short back? You get a long breast with the Dorking because you have a long back.

Mr. Hare: In utility specimens I would like to see the back longer than the standard demands. This would result in a longer body. The pullets would be better egg producers.

Mr. Hare stated that in all breeds of poultry there were heavy and light winter egg producers. It was impossible to say that one breed of poultry was superior to all others in this respect. The annual production of eggs of any flock could be increased by breeding from the heaviest layers. The speaker advised that this be done, and said that the type of fowl that would produce chickens that would most readily fatten would also give pullets that would lay well.

Q.: If you change the type of your breed, is it likely to have any effect on the egg production?

Mr. Hare: The longer-bodied bird is a heavier egg producer than the short type. This is why I incline to the Dorking type. Length of leg is of no service in any respect.

Forty lantern slides were shown to illustrate the proper type of chickens for crate-feeding and the utility-type fowl. These slides were from actual photographs, and displayed unprofitable types as well as the standard utility-type. There were also views illustrating the development of the dual-purpose breeds of poultry. In several of the breeds it was noticed that the fanciers had developed useless exhibition points, and had neglected the utility requirements. The Langshans and Exhibition Games were mentioned as two breeds in which excessive length of leg had been encouraged. The original Langshans and old English Games were far superior to the modern specimens.

HATCHING AND REARING CHICKENS BY ARTIFICIAL MEANS.

By F. C. Hare, Chief of the Poultry Division, Dominion Department of Agriculture.

Within the last two years there has been such a great increase in the consumption of poultry in Canada that it is not necessary for our farmers to consider the outside markets. There has also been a remarkable increase in the prices paid for crate-fed chickens and new-laid eggs. These two branches of the poultry business are the most profitable. As you are no doubt aware, the business of crate-feeding chickens was introduced by the Dominion Department of Agriculture in 1898. In that year about 200 chickens were fatted. This year 12,000 chickens have been fatted at the Illustration Chicken Fattening Stations, and I expect we will feed 2,000 more before the season closes.

Now, let me show how the home business has grown. The first few years no crate-fed chickens were sold in Canada. All the chickens were exported. Last year about one-half the fatted chickens were sold in Canada. This year all the 12,000 chickens were sold at home with the exception of 68 cases (816 chickens) that were bought by Mr. James Blackburn, of Manchester, England. Mr. Blackburn was here two weeks ago, and bought all the available poultry he could. He was anxious to purchase the 68 cases, and the chickens were sold him. He paid 13 cents per pound f.o.b. the steamer at St. John, N.B. He stated that he wanted 3,000 cases of chickens a week. The 68 cases could have been readily sold in Montreal for the same figure as Mr. Blackburn paid.

The Government fatted chickens were sold in Canada at from 10 to 13 cents per pound, plucked weight. Ten cents per pound was realized on Prince Edward Island; 13 cents per pound in Montreal. Mr. Henry Gatehouse, 810 Dorchester street, Montreal, agreed to purchase the total output of the Bondville (Que.) Illustration Station at 13 cents per pound, and, in addition, to pay the express charges to Montreal on the chickens. His offer was accepted. Mr. Gatehouse paid the Department for these chickens $391.30 during October, $271.05 during November, and on December 4th, $113.88, or $776.23 up to the present time. I expect the sales from the Bondville Station to Mr. Gatehouse will be $1,900 this season. The Dominion Department of Agriculture does not conduct the illustration

poultry stations with a financial object in view, but for illustration work. The Bondville Station is operated by a farmer, who is also engaged in the dairy business. His work has been so simplified that it is possible for him to take complete charge of the plant. Extra help is of necessity required for slaughtering and shipping the chickens. I want to impress this point. The work of hatching and rearing chickens artificially, the trough-feeding of chickens, and the marketing of chickens, is simple work that can be readily learned by any mature person.

The statistical returns for 1903 show that $160,518 worth of poultry was exported to Great Britain. The previous year $238,047 worth of poultry was exported. There was a decrease of about $70,000 in the value of the export. This is to be regretted, because the British market is a most satisfactory one; the Canadian white-fleshed chickens are most favorably received, and the business is profitable. While the Canadian poultry exports are decreasing, the United States exports to Great Britain are rapidly increasing. Last year the United States exports were £212,019, or over $1,000,000. The root of the trouble is the scarcity of first-class chickens. I do not believe it possible for our farmers to rear sufficient chickens to supply the local demands alone for five years to come. The Manitoba and North-West trades are opening up. This year twenty carloads of poultry were bought in Ontario by Western produce merchants. This trade was previously supplied by United States firms.

I have given this short talk so that you will know the possibilities of the Canadian poultry business, and will see the necessity for improving the type of fowl bred from, and for increasing the number of chickens reared.

Almost every farmer in Canada could rear and market profitably from 300 to 500 chickens a year. By purchasing one 220-egg incubator and building indoor brooders and movable houses, the chickens could be reared satisfactorily.

A make of incubator is preferable in which the egg chamber is heated by means of pure air warmed and forced down through the eggs. Such a type of machine is guaranteed for ten years. The initial cost of the incubator is small when its extended period of usefulness is considered. Incubators heated by hot water are not advisable, because of their short life.

Detailed instructions for the operation of the incubator are sent with each machine. These directions are written after careful experimentation, and should be followed by the operator. I will mention a few pointers: It is imperative that the incubator be placed in a room that can be well ventilated. There must be a normal percentage of oxygen in the warm air passing through the machine, otherwise the chicken embryos will be suffocated. I prefer to steadily increase the ventilation from the middle to the end of the hatch. The germs are constantly requiring more pure air, and dispelling a great amount of carbon dioxide. It is preferable to increase the moisture of the air outside the machine by sprinkling the floor, etc., rather than to lessen the ventilation or place water in the machine. The eggs require turning twice a day. The egg trays are altered or reversed at each turning. It is impossible to construct an incubator that has a uniform temperature in every part of the egg chamber. When the eggs are moved around in the chamber inequalities of temperature are of no moment. The work of attending an incubator is simple, and not as laborious as looking after two sitting hens. After a farmer has operated an incubator I have never know him to return to the sitting hens.

The chicks are left in the incubator for one day after hatching. They are then removed to a brooder. The brooder, however, should be heated to 100 degrees. The Dominion Department of Agriculture has conducted the work of hatching and rearing chickens for four years. At first outdoor brooders were used, with a small pen or closed run in front of each brooder. There were several difficulties in the use of the brooder and pen. The chickens were not comfortable in inclement weather. The confined space was too limited. During heavy rainfalls the floors of the brooders and pens were damp. The Department then built larger and more expensive pens in front of the outdoor brooders. The cost complete was about $20. This alone made it impracticable for the farmers. The large run, moreover, did not remove all the difficulties. The outfit was not positive and reliable

when handled by an inexperienced farmer. Outdoor brooders were then discarded. The next step was to plan an inexpensive indoor brooder. The brooder was placed in a moveable house. The plan has proven so satisfactory that all our stations have been equipped with the brooders and houses. One brooder is placed in each house. Our men have found that the chickens require little attention, and can be reared with minimum loss. The house is bright and cheerful inside. When the chickens cannot be allowed outdoors, they scratch for grain among the litter on the floor. The person in charge can enter the house and care for the chickens and lamp under shelter. The house will last for years. One house and brooder will rear 75 chickens to the market age. The brooder can be removed from the house when the chickens are a month or six weeks old and used for a later hatch.

Mr. Hare had an outdoor brooder in the lecture room, and explained the construction. It is contained in his bulletin "Profitable Poultry Farming," published by the Department of Agriculture at Ottawa.

Q: At what temperature do you keep the brooder ?

Mr. Hare: At 90 degrees for the first week. Then gradually reduce the temperature to 70 degrees. The lamp is kept in the brooder for four weeks. I do not recommend placing more than 75 chickens in one brooder, no matter what size it may be.

Q.: Where do you consider the most suitable place to run an incubator ?

Mr. Hare: Where the temperature ranged from 40 to 60 degrees, and where there is an abundance of pure air. We realize good results from running the incubator in a north room with the windows open all the time; there should be no direct draught on the machine.

Q.: Is the cellar a good place ?

Mr. Hare: Yes, the best, provided it is dry and well ventilated, but care must be taken in a cellar in which there is a coal furnace to see that there is no escape of gas.

Q.: Where does the Chairman run his incubator ?

Mr. Baldwin: My incubators are usually in the cellar with a coal furnace. We have no gas from our furnace. I do not think there is any gas if the furnace is properly cared for. No doubt gas would be injurious, and would depend to a great extent on the construction of the furnace.

Q.: Don't you think that any room, so long as the temperature is even, would do ?

Mr. Baldwin: Yes, I think a room in the house is admirable. There is perhaps a little more moisture in the cellar.

Q.: Can you explain why it is that chickens sometimes fail to get out of the shell when they are hatched ?

Mr Hare: If the chickens cannot turn around and break the shell, it is because it is too large, and indicates that the incubator had too much moisture. The ventilator should have been opened further and more air allowed to pass through the machine. Sometimes chickens cannot break through the shell, but simply pick a hole in it. This is due to the reason I have given.

Q.: What do you feed your young chicks ?

Mr. Hare: Dry bread, hard-boiled eggs, oatmeal and rolled oats. The chicks should be fed five times a day. In the feeding of young chicks the main conditions for success are these:

1 That the chicks are fed regularly four or five times a day.

2. That only a minimum quantity of food is given at each feeding.

3. That no food is allowed to sour.

4. That the chicks are compelled to scratch and exercise for the greater portion of their food.

5. That the chicks do not roam over tainted ground, or ground on which a great number of chickens have been reared previously.

Q.: What is the reason that a short pullet will not lay as well as one of the longer type ?

Mr. Hare: I think the reason is that there is more room for the egg organs in a longer bird.

Q.: How do you stop hens from eating eggs?

A.: Give them an over-supply of egg shells; hens eat eggs for the shell, not for the inside.

Q.: Is there anything that will take the place of egg shells?

A.: Dry mortar or plaster from an old building will answer.

Q.: Is not egg eating caused by neglect in feeding?

A.: It arises from the hen not getting sufficient lime for shell-forming material. I have had hens that were not laying begin to lay just as soon as they were supplied with egg shells.

Q.: Are oyster shells good?

A.: Yes, they are all right.

Q.: Why is it that a hen can produce all the material for the egg except the shell?

A.: The reason is that in one egg shell there is more lime than in a bushel of grain; that is why they cannot get sufficient lime from grain.

Q.: For how long do you keep chickens in fattening coops?

A.: From three to three and a half weeks.

Q.: Which would you rather have, a brooder or a mother hen?

A.: A brooder will take charge of 50 to 75 chickens. The hen is all right in her place, but the brooder will take charge of so many more chicks.

Q.: Do the chickens thrive as well in the brooder?

A.: Yes, certainly; usually better; and they can be easily fed and looked after.

BREEDS OF CHICKENS.

By W. R. Graham, Manager Poultry Department, O.A.C., Guelph.

I find there are good and bad strains in all breeds of chickens. If there is one breed with which you succeed better than another, stick to that breed. There are a number of points to be taken into consideration besides the breed. First, the management; second, improved methods of feeding. The feed is half the breed, and I presume the breed is fully half the feed. In regard to breed, there are special purpose breeds and general purpose breeds. The special purpose breeds are divided into meat producers and egg producers. Among the meat producers I would draw attention to the Cochins, Games and Brahmas; of the egg-producing breeds, to the Hamburg, Leghorn and Andalusians. A peculiarity of the latter breeds is that nearly all of them lay white-shelled eggs, and they are non-sitters, but I believe it is possible to overcome this trait by selection. The general purpose breeds are the Rocks, Wyandottes, and Dorkings. There is no fowl on the market to-day that is quite as popular as the old-time Plymouth Rock. I do not know that they are any better than many others, but they are very popular. An excellent breed is the Wyandotte. They are of blocky, compact type, so much to be desired. There is no chicken that is a better winter layer or will stand more cold, and at the same time is strong and hearty. Their eggs, however, are not very large, and vary in color from a deep to a light brown.

Of the new breeds, the Orpington, perhaps, cannot be excelled for egg production. I have never fed any hens that will lay as easily in the winter time as the Buff Orpington.

The Rhode Island Red is peculiar to the State of Rhode Island, and is very popular there. I do not know of any State of the Union where you get a better idea of the wholesale chicken business than in that State.

J. W. Clark, Onondaga: I think it is very necessary that we Institute speakers should study the requirements of the trade, so that we may be in a position to advise as to what breed or type of bird the farmer should grow. Two years ago I wrote to a number of exporters and those handling poultry to find out what class of chickens they re-

quired for the export trade. They all wrote that they required a bird weighing from three to five pounds, with a low breast bone, plenty of breast meat and white flesh. We want a general-utility bird having these characteristics. I have always considered that the Buff Orpington met the requirements best. They have white flesh and white leg, and the English dealers tell me that they favor a white-legged fowl.

There is a great deal in getting a correctly-shaped bird, as they will produce flesh more easily for the same amount of food. I think that the best breeds for the farmers are the general-utility breeds, such as the Barred Rock, White Rock, White Wyandotte, and the Buff Orpington.

In selecting poultry we should have some idea of the laying strain. A man in the dairy business knows that he cannot select an animal of the beef type and secure the best results from the point of view of the dairy. We can, however, select from the utility type birds that are likely to be good layers. The type of the egg producer has a nice, clean cut, small head, with a body larger behind than in front. Avoid one that is larger in front than behind. I cannot impress too much the importance of care in the selection of the hen. The hen that is a good layer is a profitable hen. Care should be taken to breed along this line by careful selection.

One fault with the Orpington hen is that she is inclined to be too broody ; but if you take a hen that is inclined to sit too frequently, and break her up the minute she begins to sit, you will soon cure her of the habit. If they are put in a crate with lots of air, they will not have the desire to sit ; but do not let them sit for a day or two and then try to break them up.

Q.: What is a good egg-producing ration in winter ?

Mr. Clark : I feed sufficient corn in the litter at night to allow the hens to fill themselves and leave sufficient over to keep them busy in the morning till about nine o'clock. I then feed a mash, and give them roots at noon.

Q.: What kind of chop do you feed ?

Mr. Clark : Oat chop, or a mixture ; I like shorts very well.

Q.: Do you give them meat ?

Mr. Clark : Yes ; about once a week.

Q.: Do you mix your mash with skim milk ?

Mr. Clark : Yes. Corn is one of our best foods if you do not feed it too constantly : it is a great egg producer.

Q. What do you give them to drink ?

A.: Water.

Q.: Do you prefer it to milk ?

A.: Yes ; when I mix milk with the mash. I find that the best ration for young chickens the first week is to take onions and chop them fine or grind them and mix with bread, broken biscuit or oatmeal and hard boiled eggs. Onions regulate the bowels, and they agree with the chickens remarkably well.

EXPERIMENTS WITH DUCKS.

By W. R. Graham, Manager Poultry Department, O.A.C., Guelph.

We have had several inquiries as to how much feed a duck would eat from the time it was hatched until it was ready to market, or about ten weeks of age Some farmers doubted if it was more profitable to kill and sell the ducks when first feathered than to hold them until Christmas.

Fifty-one ducks were taken from an incubator on May 29th and placed in a brooder. There were 29 Pekin ducks, 22 Rouens, and crosses between the Pekin and Indian runner ducks. The brooder was heated for the first week only, and the ducks after the first two or three days appeared to be very indifferent as to whether there was any heat or not, so that not over three quarts of oil was used. No charge is made for this, the object

being to keep account of the grain and other materials consumed. The young ducks were carefully yarded, and an accurate account kept of the food consumed with the exception of grass. This grew more or less in the yard, and the ducks helped themselves. No charge is made for the grit, and as many farmers have an abundance of coarse, sharp sand or fine gravel, we thought best to keep no accurate account of the grit used. Making an estimate, I would say that they consumed about one hundred pounds of grit, which would be worth about 75 cents.

During the first week the ducks were fed on bread and milk and alternate feed of corn meal, shorts and bran in equal parts, with some grit added. This was scalded with boiling water. The second week the ducks were fed the corn, shorts and bran ration, moistened with milk, and in addition had a small amount of beef scrap added. This ration was continued until the ducks were four weeks old, when the bran and beef scrap were left out of the ration. The intention was to use some beef scrap, but at the time we were unable to procure any, and, therefore, left it out entirely.

The ducks weighed, when six weeks old, 171 pounds, or an average of about 3 1-3 pounds each, and had consumed 130 pounds of corn, 130 pounds of shorts, 25 pounds of bran, 14 pounds of stale bread, and 15 pounds of beef scrap.

The grain was figured at the following prices per 100 pounds: Corn, $1.15; shorts, $1.00; bread, $1.00; bran, 90 cents; beef scrap, $3.25; skim milk, 10 cents.

From the sixth to the eighth week the ducks consumed 310 pounds of shorts and corn, and an equal amount of milk.

They weighed 239 pounds, or on an average of better than 4 1-2 pounds each.

At nine weeks the ducks weighed 261 pounds, and during the week had consumed 139 pounds of grain and an equal amount of milk.

At this age the ducks were ready for the market. They were in good feather, and should have been killed. However, we killed six of the flock and fed the balance for another week. The cost of a pound of gain to this age was as follows: From the ninth to the tenth week the forty-five remaining ducks consumed 130 pounds of grain and an equal amount of milk. During this week the ducks lost seven pounds in weight; they began moulting heavily at the beginning of the week. All but thirteen of the ducks were killed at the end of the tenth week. The ducks were sold f.o.b. Guelph at 12 cents per pound. We found that in dressing that the ducks lost about 3-4 pound to the pair. The necks were pulled in the same manner as the chickens are killed. Had the ducks been bled, no doubt, there would have been a greater shrinkage. After deducting the cost of grain and milk only from the selling price, it leaves a profit of nearly 34 cents on each duck Had we killed all the ducks at the ninth week, there would have been a profit of 38 cents each.

During the eleventh week the remaining 13 ducks consumed 27 pounds of grain and an equal amount of milk. They gained in weight two pounds.

There was not much gain made by the ducks until after the new feathers had been fairly grown. In fact, the ducks ate more feed during each week after the ninth week than the number of pounds of gain made would warrant so as to leave a profit.

From this trial is is very evident that when ducks become well feathered it is the most profitable time to sell them, and, secondly, that the growth made after the ninth or tenth week is not very profitable.

DISCUSSION.

Q. Don't you think that a woman will look after chickens better than a man will, and that she will make a greater success of chicken raising?

A. I think so; we have many ladies in our short courses in poultry raising at Guelph, and our experience is that they take a little better care of the birds than a man will, and that therefore they thrive better.

Q. What variety of ducks do you recommend?

A I think the Pekin will grow faster than any others. The Cayuga comes a close second, but the black pin feathers of this breed are somewhat objectionable.

Q. Have you tried crate fattening for ducks?

A. Yes, and they did not do as well as if they were loose. I have also tried cramming ducks, but found they did not eat as much as if they were not crammed. A duck must have grit. We add a quart of grit to a pail of food. Do not give ducks water to swim in, or they will grow feathers and not meat. If you want to breed ducks and want nice fertile eggs, you will get better results by giving them water to swim in. Supply ducks with shade, because they cannot stand the hot sun.

Q. Where do you procure animal meal?

A. From A. G. Morgan of London, The Wm. Davies Company of Toronto, or from Swift & Co., Chicago. Seed dealers carry it in stock as a rule.

Q. Do you not give ducks whole grain?

A. No; none at all.

Q. What breed of hens do you find produces the best winter layers?

A. Buff Orpingtons, White Wyandottes, and Barred Plymouth Rocks.

Q. Is it not largely a matter of strain?

A Yes. There is a great deal of misconception on that particular point; it is a matter of strain rather than variety or breed. I have at the present time a strain of White Wyandottes that outlay any breed I have.

Substitutes for Skim Milk. During the past season we continued our experiments in regard to a substitute for skim milk for fattening chickens. Skim milk has more influence than any other food in preserving the white color of the flesh which is so desirable for the market.

How fed.	Ration.	No. of birds.	Weight at beginning of experiment.	Pounds of grain in two weeks.	Pounds of grain consumed.	Cost of grain.	Lbs. of grain make 1 lb. gain.	Lbs. of milk consumed.	Cost of milk at 10 c. cwt.	Lbs. of skim milk substitute.	Cost.	Total cost.	Cost of 1 pound of grain.
						cts			cts.		cts.	cts.	cts.
Fed in crates	Grain and milk	12	40	15	43.5	54.37	2.9	65	6.5	.....	.....	60.87	4
	"	12	37.75	15.25	37.75	46.87	2.4	55	5.5	.....	.....	52.37	3.4
	"	12	52.	15	45.37	56.7	3.02	68	6.8	.....	.....	63.5	4.2
	Average	..	....	15.08	42.2	52.64	2.77	62.6	6.26	.....	.....	58.91	3.9
Fed in loose pen	Grain and milk	12	51	14	45.37	56.7	3.24	68	6.8	.....	.....	63.5	4.5
	"	12	40.5	15	43.5	54.37	2.9	65	6.5	.....	.....	60.87	4.
	Average	..	....	14.5	44.43	55.5	3.7	66.5	6.65	.....	.....	62.18	4.25
Fed in crates	Grain and tankage	12	36	16	35.25	44	2.2	....	....	7.50	15	59	3.62
	"	12	49	14	35	43.75	2.5	....	....	6.81	13.63	57.38	4.09
	Average	..	..	15	35.12	43.87	2.35	....	....	7.15	14.31	58.19	3.85
Fed in crates	Grain and blood meal	12	54	10	34.62	43.33	3.46	....	....	6.81	18.75	62.08	6.2
	"	12	48	12.5	36.37	45.5	2.9	....	....	4.25	11.68	57.18	4.57
	"	12	37.5	12	35.25	44	2.9	....	....	5	13.68	57.68	4.8
	Average	..	..	11.5	35.41	44.27	3.08	....	....	5.35	14.7	58.98	5.19
Fed in crates	Grain & Morgan's animal meal	12	52.5	16.5	41.12	51.40	2.49	....	....	8.7	21.75	73.15	4.47
Fed in crates	Grain and beef scrap	12	35	15	34.5	43	2.3	....	....	7.3	23.66	66.6	4.4
"	Grain, milk & animal meal	12	53	14	37.25	46.56	2.66	5.6	5.6	8.12	20.31	72.47	5.18
"	" "	12	53	18	42.8	53.5	2.36	64	6.4	3.5	8.75	68.65	3.8
	Average	..	....	16.	40.	50.	2.51	60	6.	5.81	14.53	70.56	4.4
Fed in loose pen	Potatoes, shorts and milk	12	56	9	31	31	3.4	47	4.7	31.	16.	51.7	5.7
	" " "	12	54.5	10.5	31.12	31.12	2.95	47	4.7	31.12	16	51.8	4.9

Tankage mixed with the meals mentioned above makes a better ration than skim milk and grain. It is necessary to use great care in feeding blood meal. We do not feed more than fifteen per cent. of blood meal, as otherwise the birds will not digest it. We have found this year, as usual, that chickens put in the crate at three pounds make better gain at less cost than heavier birds do.

Q. Do you not think that bran and potatoes would make a better balanced ration?

Mr. Graham: You could not get them to eat sufficient of it.

Loose Pen versus Crate Feeding. In feeding in loose pens in comparison with crates, our difficulty until this year has been that we could not get the chickens in the pen to eat sufficient. This year both systems gave practically the same results. The crates, however, are more economical of room.

Q. When you ship to Montreal, do you ice the chickens?

Mr. Graham : No, I chill them to about 40 degrees, getting the animal heat well out of the body.

Q. Would a cellar at a temperature of about 45 degrees answer?

Mr. Graham : Yes, perfectly well.

Mr. Hare : I would advise, on the farm, packing them in ice in barrels, a layer of ice and a layer of chickens. Then ship by express and they will carry safely to Montreal.

SOME THINGS WHICH EXPERIENCE HAS TAUGHT.

By A. G. Gilbert, Central Experimental Farm, Ottawa.

I note on the official programme that I am put down to speak on the results of the experimental work of my department during the past year. With your permission, I shall alter the time from one to twenty years. Why? Because the work of one year is either a continuation of work previously commenced, or it may be only begun in the past year and is therefore incomplete. An experiment to be valuable must be confirmed. The results of one year's work may either be confirmed, modified, or, indeed, contradicted by the experience of a succeeding year. An experimenter who gives the results of one year's experiments as final is apt to mislead, although unintentionally so. It is the average of a number of years of carefully conducted experimental work that is valuable.

Well, you say, twenty years is a long time; what have you learned during that period? Much more than I can begin to tell an audience in the short time at my disposal on the present occasion. But I can tell you some of the most striking experiences: First, as to winter laying qualifications or properties of certain breeds, or varieties of breeds. It is arriving at correct conclusions in regard to this that our average of many years proves its value. We have a daily record of the eggs laid by ten or twelve of the leading standard varieties for five or six years past, and the quantity of food given to these fowls, and the particulars in detail will make an exceedingly interesting bulletin some day. Some of the striking features of the experimental work of that time is all I will attempt to give you to-night. It has been shown—among many other results—that the pullets of a variety may lay well during the winter and not do so well, when hens, the following season. Again, pullets may be indifferent layers one winter and lay well, as hens, the next. And yet, we have about the same percentage of eggs winter by winter. Where one variety fails to give good results, another seems to come to the rescue. This feature does not seem to be peculiar to one breed more than another. I may illustrate my point in this way :—A man once wrote me that, judging from the number of eggs laid by a pen of Barred Rock hens, as published in the annual report, that there was no money in hens. I answered by referring him to what this pen had done as pullets the year before, and to note what the pullets from these hens had laid. I pointed out to my correspondent that the year previous had been a mighty poor one for apples. There were hardly any in this and neighboring sections. Looking at the results on this occasion, the natural conclusion would be, "There is no money in growing apples." But the autumn of the following year saw such a great apple crop that the branches of the trees had actually to be supported. It was the "average" of the two years that made the paying crop. Certainly there is money in apples and hens, with this difference: that if the hens did not do well in the case referred to, their offspring certainly did. Perhaps when the apples were scarce we had an abundance of of crabs, and so the reputation of the apple family was saved.

Did it ever strike you that Nature never seems to give to us things year by year in superabundance—in such quality as not to make some effort necessary in obtaining them.

It is true, some years are more profitable than others; but there is always effort necessary, and effort is work, and without work man would be dependent on charity or starve. It is all wisely ordered.

Another feature noted in winter laying was that the non-producers at the time of high prices became layers as the spring season opened, and took the place of the birds which either slackened off or became broody. I speak now, of course, of the setting varieties. Oh! you say, then the direct lesson is to have only non-setters and use incubators! But not so fast. It is all very well in the case of the party who wants eggs only. And if eggs only were produced, what would become of our table poultry? I have no objection to any one keeping poultry for egg production only. My duty is to help on all the different phases of poultry keeping. But I am also among farmers to tell them how to make money out of their poultry; and this is where the experience of so many years enables me to speak with no uncertain sound.

First, we have learned from experience that "scrub" poultry, so frequently found in many barn yards, will not make the egg-layer and flesh-producer that the pure-bred bird of the "utility" types makes. It may be a fairly good layer, but is not a good market type. I am sure you will agree with me, that a breed is of very little use to a farmer if it does not make money for him, as a flesh-maker, as well as an egg-layer. In too many cases, at present, the farmers keep their hens during the winter season, the period of high prices, doing nothing, to begin to lay when eggs are away down in price, and in many cases the chickens raised from these eggs are late and of the nondescript type. The farmer who so manages his poultry is getting only half value out of his birds. He should have them so comfortably housed and intelligently fed that they will begin to lay in November and continue so to do all winter, and then when eggs are at a low figure in April, convert them into chickens which will mature early and bring him a high price.

In order to take advantage of their opportunities to make money by obtaining the eggs in winter and the rapid flesh-forming chickens in early summer the farmer must be equipped with,—

First,—The breed of fowls which will give him eggs in winter, and rapid flesh-making chickens during summer.

Second,—He must house, feed and properly handle his birds so as to get the eggs in winter.

Third,—He must properly care for and feed the chickens from time for hatching until the salable age, particularly during the first five or six weeks of the chicken's life, during which period the future fowl is either made or marred. I have repeated this warning so often that I am almost ashamed to do so again on the present occasion, but it is of the most vital importance. No matter of what superior variety or breed the chicks come most vital importance. No matter of what superior variety or breed the chicks come period of their life time to become "stunted" from being "stinted" for proper food and care, they will never recover from it.

As to the breeds, Plymouth Rocks, Barred or White, White Wyandottes, Silver Grey Dorkings, and the comparatively new comer, the Buff or White Orpingtons, afford him a choice. Let the farmer make a choice of either breed named. One is easier to manage than two, and there is no danger of breeds getting mixed.

Experimental work of the past fifteen years and experience of some years previous, permit me to speak with no uncertain sound of the merits of these breeds, as winter egg-layers and rapid flesh-makers.

Having chosen one of the breeds named, how can the farmer get eggs in winter? He must observe certain conditions. First, the hens must not be older than two years of age, and so managed as to be over their moult by the middle of October. It is an easy matter to keep the fowls of the proper age, and if the hens lay well in winter, they are likely to more easily moult early. An early moult may be secured if the hens are confined to runs by removing, at the beginning of July, the male birds to a separate building, and then allowing the hens to run in a field or part of a field where they can find grass and clover.

At the same time their winter rations should be reduced one-half in quantity and so fed for two weeks.

The effect of this will probably be to stop egg-production, which is desirable. At the end of two weeks the ordinary rations should be resumed. The response to this, in due course, should be the shedding of the old feathers and the appearance of the new feather sheaves, and by the end of September or beginning of October, very likely sooner, the hens should be over their moult and ready to begin egg-laying by the end of October or beginning of November, when eggs are becoming higher in price. For November eggs I have been offered 40 cents per dozen by Mr. H. Gatehouse, the well-known game and poultry dealer, of Dorchester street, Montreal. All this necessitates some trouble on the part of the farmer, and so does the proper management of any department of his farm, which he is desirous to make a revenue producer. As managed in too many cases at present, the farmer's hens are over two years of age and his pullets are much too young. As a result their old hens moult during late fall or the winter season, and consequently do not lay, for the moulting season is really one of non-production. The young pullets do not mature in the cold weather, and do not lay until probably the following spring.

Another thing of very great importance has experience shown, and that is the importance of strain. Experience has also shown that some strains are much better egg-layers than others, as some are much more robust and constitutionally stronger than others. As a result of a recent egg-laying competition among different breeds, held in England, the statement was made, at the conclusion of the test, that one of the most important lessons taught was the value of strain. It did seem as if strain was as important as breed, and undoubtedly such is correct. Too much importance cannot be placed on strain. The dairyman knows the value of that. To have good winter layers, early moulting hens and rapid growers, the progeny should come from parent stock which have proved themselves to have all these desirable points. Chickens from hens which have been kept in artificially warmed houses, and otherwise pampered to lay during the winter season, are not likely to make good winter layers, if they should be placed in the ordinary farm poultry-house. It is most important, then, that the farmer should know all about the stock from which he buys eggs for hatching, and it is equally important that the teacher should know and value that fact. It is from hardy, vigorous parent stock that the farmer should obtain eggs for hatching or young birds to breed from.

In connection with this, and as a proof of its correctness, the following experience in connection with the work in my department should be brought to your knowledge. The results are from Barred Plymouth Rock and Buff Orpington pullets, which, with the male bird, never knew what a warm house was. The Plymouth Rock pullets were hatched in May; the Orpingtons in July, and unavoidably so, because we did not get the eggs for hatching them sooner. The egg-lay by the Plymouth Rock pullets was remarkably good. From the eight birds, during December, January and February of last winter—and we all know what a cold winter it was—four, five and six eggs were collected daily. The best laying was done in January and February. After a thirty-degree-below-zero drop in January, the number of eggs went down, for a day or two, to three per diem, but it soon went up to four or five again.

The house these birds were kept in was part of a shed and was made of two thicknesses of one-inch board, with paper between. It was not a warm place, as you will readily understand, for the eggs had to be collected soon after being laid, or they would have become frozen. But the birds were out in the shed almost every day and came from parent stock which had been kept under similar conditions, for their parent stock never knew what a warm house was; nor do they, for they are yet alive, and very much so. This, in combination with the fact that the birds were fed on the house and kitchen waste. They were fed on potato peelings, turnip peelings, bits of cabbage, carrots, and broken meat. These were all boiled and mixed with a stiff mash with a little shorts. Occasionally a little cornmeal is added. Raw cabbage, and a mangel now and again, were also often given A dry dirt floor, not overmuch room, not very much exercise, but still the birds laid as I have told you. Why? They were hardy, from hardy, vigorous parent stock, and the

variety in their rations and the cold but pure fresh air did the rest. The variety in the rations did seem as important, if not more so, than the rations themselves.

The Buff Orpington pullets did not lay as early as the Barred Rocks, because they were late July hatched, but when they did begin to lay, between five and six months of age, no birds could lay better. They were kept in a division of the same cold poultry-house as were the Rock pullets. From these Orpington pullets, three, four and five eggs a day were got, and in early spring every one of the six pullets, several times, laid daily, during a week.

The Best Times for a Farmer to Hatch Out His Chicks.

It is shown in my report for 1900 that the most suitable time for the great majority of farmers to hatch out their chickens is in April, or, early May, for the reason that unless provided with incubator room and brooding house, so as to be independent of outside temperatures, it would be inconvenient, if not impossible, to raise chickens in paying numbers at an earlier season. Further experience and expressions of opinions from farmers strengthen that statement.

As to the best means of hatching and rearing the chickens, farmers and poultry breeders are fast realizing that in order to have the early chickens in requisite number and uniform age artificial means are necessary. There is no intent to belittle the hen as a hatching medium. Doubtless she will be the favorite with those who desire only a limited number of chickens, and are not particular as to whether early or late hatched. But where over one hundred chickens are desired early and at the same time, many more hens than are usually obtainable at that season would be required to give desired results.

How many hens should a farmer keep, and how many chickens should he rear ?

This is a question of great import. From 50 to 100 hens should not overtax the resources or energy of the ordinary farmer, and he should be able to rear 150 chickens. It is not good for him under any circumstances to have more fowls than he can manage profitably. If there is help to be had from his family, a great number may be successfully handled. It is fair to presume that the great bulk of the chickens raised throughout the country will come from the many farmers with a few hens, rather than from a few farmers with a large number of fowls each. In regard to this phase of the subject, the ground I have taken will be shown in the following report of an address delivered by me at a series of Farmers' Institute meetings held last winter in North Lanark, which reads :

"Mr. Gilbert, in introducing his subject, remarked on the number of boys and girls present. It was of the most vital importance to keep them on the farm, and poultry keeping, if taken up in the right spirit, could be made an attractive and remunerative means of doing so, and in this way : The poultry purchasing companies of Toronto were only too anxious at this season of the year"—that was about January—"to make arrangements with the farmers for the supplying of from 100 to 250 chickens each, to be ready in the months of July and August. This would necessitate the use of incubators and brooders (which are successfully operated by many farmers' wives), in order to have the chickens in quantity and uniform size. The women and young people of the farm household quickly learn to manage incubators and brooders. The rearing of the chicks requires to be carefully attended to, in order to have the so much called for three or four months' old bird. April is the best time for the farmer to set his hens, or fill his incubator, so that he may have early May chicks, which certainly, in this section, make the most satisfactory progress. But the farmer says, 'I would like to get the chickens for the Toronto people, but I am a pretty busy man about the time the hatching and rearing should take place, and I am afraid I won't have time.' Now is the opportunity to say to boy or girl, or both, 'If you will hatch and rear the chickens the Toronto buyers want, I will give you a paying percentage of the profits.' By so doing, the farmer will not only make money for himself and his family, but he may create a love for this department of farm work that may be a tie that will bind the boys and girls to the farm for good, and that is what we want to accomplish."

PROPER RATIONS FOR THE DAIRY COW.

By Henry Glendinning, Manilla.

The main object the dairyman has in view is to produce the maximum flow of milk at the minimum cost. The dairyman has little opportunities of raising the price of his products in the form of butter and cheese, beyond placing a uniformly good article on the market. He has to be content with taking the prices these products will bring in the Old Country markets, less cost of handling and freight. Therefore there is but one end from which he can work, and that is to reduce the cost of production. How is this to be accomplished? I assume, that, in the first place, he has the right kind of cows; but we are not discussing that point this morning. How is he to produce milk cheaply? By having the proper kind of cows and feeding the proper kind of food. What should there be in the feed for a dairy cow? The ration should be bulky, palatable, succulent, free from objectionable flavors, contain the proper nutrients, and it should be cheap. If we have all these things combined, we are in a fair way to produce milk at a low cost.

The following table shows the digestible nutrients in the common feedstuffs and grasses:

Digestible Nutrients of Feed Stuffs per 100 lbs. Concentrates.

	Dry Matter.	Ash.	Protein.	Carbo-hydrates.	Fat.	Nutritive Ratio.
Wheat	89.5	1.8	10.2	69.2	1.7	1:7.1
Barley	89.1	2.4	8.7	65.6	1.6	1:7.9
Rye	88.4	1.9	9.9	67.6	1.1	1 : 7.0
Corn	89.1	1.5	7.9	66.7	4.3	1:9.8
Peas	89.5	2.6	16.8	51.8	0.7	1:3.1
Oats	89.0	3.0	9.2	47.3	4.2	1 : 6.2
Buckwheat	87.4	2.0	7.7	49.2	1.8	1:6.7
Field Beans	85.5	3.1	23.0	50.2	1.4	1:2.3
Flax Seed	90.8	4.3	20.6	17.1	29.0	1:4.2
Sunflower	92.5	2.6	12.1	20.8	29.0	1:7.4
Wheat Bran	88.1	5.8	12.2	39.2	2.7	1:3.7
Wheat Shorts	82.2	4.6	12.2	50.0	3.8	1:4.8
Linseed Meal, O.P.	90.8	5.7	29.3	32.7	7.0	1:1.6
Cottonseed Meal	91.8	3.5	37.2	16.9	12.2	1:1.2
Grasses, Green.						
Kentucky Blue Grass	34.9	2.8	3.0	19.8	.8	1:7.2
Orchard	27.0	2.0	1.5	11.4	.5	1:8.0
Red Top	34.7	2.3	2.1	21.2	.6	1:10.0
Timothy	38.4	2.1	1.2	19.1	.6	1:17.1
Clovers, Green.						
Red Clover	29.2	2.1	2.9	14.8	1.7	1:5.6
Alsike Clover	25.2	2.0	2.7	13.1	.6	1:5.3
Lucerne Clover	28.2	2.7	3.9	12.7	.5	1:3.5
Hay.						
Red Clover	84.7	6.6	6.8	35.8	1.7	1:5.8
Timothy	86.8	4.5	2.8	43.4	1.4	1:16.7
Straw.						
Oat	90.8	5.1	1.2	38.6	1.8	1:33.1
Peas	84.0	4.5	2.9	33.4	1.5	1:12.0
Silage.						
Corn	20.9	1.4	.9	11.3	.7	1:14.4

Digestible Nutrients of Feed Stuffs per 100 lbs. Concentrates.—Concluded.

	Dry Matter.	Ash.	Protein.	Carbo-hydrates.	Fat.	Nutritive Ratio.
Roots.						
Sugar Beets, feeding	13.5	.9	1.1.	10.2	.1	1:9.4
Mangels	9.1	1.1	1.1	5.4	.1	1:5.1
Turnips, Swedes	11.4	1.2	1.0	8.1	.2	1:8.5
Carrots	11.4	1.0	.8	7.8	.2	1:10.3
Parsnips	11.7	.7	1.6	11.2	.2	1:7.3
Potatoes	21.1	1.0	.9	16.3	.1	1:18.3
Rape	14.0	2.0	1.5	8.1	.2	1:5.7
Field Pumpkins	19.1	.5	1.0	5.8	.3	1:6.5
Milk and Its By-products.						
Milk, new	12.8	.7	3.6	4.9	3.7	1:3.8
Milk, separator	9.4	.7	2.9	5.2	.3	1:2.0
Buttermilk	9.9	.7	3.9	4.0	1.1	1:1.7
Whey	6.6	.4	.8	4.7	.3	1 : 6.8

The milk given by a cow is produced from the food which she consumes, and the old saying that "All flesh is grass" is true in this connection. It has been found that certain elements in the food produce the bone or the frame-work of the animal; these are the mineral contents. Then we have another class known as the nitrogenous compounds, which make the muscle, hair, horns, hoofs, curd in the milk, and a large percentage of the blood. These compounds are classed under the name of protein. We have a third class of nutriments, going under the name of carbo-hydrates, and consisting chiefly of starch and sugar. Another class, called the fats, contain besides fat or oil, wax and coloring matter.

You are all well acquainted with the Canadian Blue Grass; it is practically the same composition as the Kentucky Blue Grass, as shown on this table. In 100 lbs. of Kentucky Blue Grass you would have 2 8-10 lbs. ash, which is the mineral constituent. This is used in the production of the bone of the animal, and it also assists in digestion. We do not as a rule take much account of the mineral matter, for the reason that nearly all our grasses, straws and food stuffs contain a large amount of bone-forming material. However, it is very important. Last autumn I was in British Columbia, and one of the things I noticed was the lack of lime and mineral constituents in the soil. I suspected from this that there would be a weakness in the bone of the animals, and I was not disappointed. I found it was a very common thing there for cattle to break down in the shoulders, and it is quite common for sheep to break their bones in merely running over the pasture when chased by dogs.

In the nitrogenous foods, the protein goes to produce curd in the milk, the lean meat or muscle, the tendons, and the hair; and it also enters largely into the production of the egg and the feathers upon fowl.

The carbo-hydrates, consisting of starch and sugar, produce heat and fat, and give energy to the animal. Fat in the food also produces heat, and is much stronger than the starch food. A pound of fat is capable of throwing off as much heat either when burned by fire or consumed in the animal's body as 2 1-4 lbs. to 2 1-2 lbs. of starch or sugar.

The nutritive ration means the relationship existing between the protein and the carbo-hydrates and fat combined.

The question will arise as to what is a well-balanced ration. Scientists have laid down certain rules for this. Under summer conditions of temperature, when the animal does not take too much exercise and the food is easily digested, it has been found that one part of protein to 5½ of carbo-hydrates makes a properly balanced ration for a dairy cow. However, farmers do not follow this closely; they do not weigh the food of their animals the same as the chemist would, and, moreover, a certain amount of latitude may be allowed. We do not always have summer conditions of temperature; we do not always have food that is easily digested, and it requires more energy to digest some foods than others. Then, too, more heat is required at some seasons of the year than at others, and consequently we have to add more of the carbo-hydrates to keep up the heat of the animal's body. Therefore, there are times when we use a wider ration than at others. A wide ration is one

containing anything over one part of protein to six parts of carbo-hydrates; under one to five is considered a narrow ration. You will see, therefore, that feeding standards serve simply as guides to the farmer in feeding. Many years ago, before the science of feeding was understood, farmers discovered that by feeding a mixed ration of grain they got better results than from feeding any one grain alone. This knowledge was gained from experience; but it required the scientist to come in and show just how the mixture should take place. Sometimes farmers mix two or three kinds of grain together and get excellent results; at other times they do not get equally good results, owing to the fact that they are not mixing the proper kinds together.

In the feeding of dairy stock the farmer has to use a great deal of judgment and common sense. I suppose that every farmer at one time or another has had a lot of fresh cows in the spring and has run out of succulent food, but has plenty of grain, hay and pure water. He has been feeding the cows liberally and has been getting good results. I will submit a ration that contains no succulent food, and yet will give a good flow of milk. It is clover hay, pea meal, wheat bran, ground oats and pure water. But some day, along towards the latter part of May, you may have taken all that expensive food from your cows and turned them out to pasture, where they have had simply plain grass, and after the novelty of the situation has worn off, they get down to work and give better results than they did on the expensive ration.

Q. Sometimes certain individuals will do better on grain feed than on grass?

Mr. Glendinning: That depends on the individuality of the cow; I agree that for a few days they may not do as well. But the average cow that has not been fed any succulent food while housed in the barn will give a much better flow of milk after she has been out on the grass for a few days and has become accustomed to it.

Q. Don't you think that the pure air has something to do with it?

A. Yes; but pure air does not make milk.

Mr. Glendinning: I think we shall all agree that grass is a cheap and a good food. Why is it that a cow on fresh grass gives better results in a general way than she would upon the ration I have mentioned? I think the reason is that it requires very little energy on the part of the cow to digest the grass and to convert it into milk, whereas, in the case of dry foods, it requires a great deal of energy. Therefore, for milk production, it is important that we have a succulent food. In blue grass and white clover (which is richer in protein than red) we have all the elements necessary for the production of milk, and in the most easily digested and most readily assimilated form.

As we do not have summer conditions all the year round, we have also to turn our attention to winter-feeding. In summer time this question gives us little concern if we have plenty of pasture and pure water, for fresh air is there in abundance. In winter it is entirely different, and we must endeavor as nearly as possible to surround our animals with summer conditions. We must therefore have good ventilation and pure water in the stable, the importance of which is too often overlooked. Many men look carefully to the feeding of their animals and neglect these other essentials. For example, they will perhaps turn their cattle out once a day to drink through a hole in the ice at a creek some distance away. They first drink a large quantity, but some of the younger cattle get chilled and drink very little. On returning to the stable, perhaps the doors are not open, and the cows stand outside and commence to shiver. Those that have drunk a great deal have perhaps taken 60 or 70 pounds of water into their stomachs at a temperature of about 32 degrees Fahrenheit. The first use to which the expensive food that they have eaten is put is to warm up that water from 32 degrees to 102 degrees. Thus the question arises, would it not pay the farmer better in the long run to provide good, warm, comfortable, well-ventilated quarters for his stock, with a plentiful supply of water in front of the animals all the time, so that they may take a little whenever they require it without the animals being chilled. The importance of the water question will perhaps be understood more clearly when I mention that the body of the cow consists of about 50 per cent. of water, the milk 87 per cent., and the blood 80 per cent. Then, too, the water is the means whereby the whole of the food you have fed to the animal is carried through the system.

Q. What is the ideal temperature for a stable?

Mr. Glendinning: About 65 degrees.

Mr. Clemons: I should say 75 degrees.

Hon. Mr. Dryden: How do you get that temperature?

Mr. Clemons: You get it if you have a warm enough stable.

Hon. Mr. Dryden: From the breath of the animals?

Mr. Clemons: Well, yes.

Mr. Glendinning: How do you retain the animal heat and yet secure ventilation at the same time?

Mr. Clemons: My object in stating this is that it is not possible to get the best results by allowing the cattle to run in the barn yard. If we can keep the stable at 65 degrees we are doing pretty well. Seventy-five degrees is the ideal temperature; it is well to have an ideal, but we do not always reach it.

Mr. Glendinning: As regards food, we first require a bulky ration, as the cow can make better use of a bulky ration than a concentrated one. Then, it should be palatable. Cows like a change, and they like their food in the finest shape possible. The cow is as dainty as we are. We eat more if the food is palatable and well served, and the cow does the same. We want the cow to eat just as much as she can economically use. Then, the food should be succulent. We have no grass in the winter time, and therefore have to depend on roots and corn silage, which are the two principal succulent foods in this country.

It takes a large proportion of the food the cow consumes to maintain the animal. If we feed an animal just sufficient to maintain her, we are feeding what is known as a maintenance ration. But the food we get profit from is that which she consumes and assimilates over and above that required merely for maintenance, and within certain limits, the more the cow consumes, the more will she produce. Many of our dairymen feed their cows too light a ration. But while feeding liberally, we must also feed economically.

To feed successfully we must be economical. This is perhaps where the skill of the feeder is most required. It takes a large amount of the food consumed to maintain the animal, and it is only the food that the cow digests and assimilates over the maintenance point that she converts into milk. We can feed a cow so as to increase her milk production, but when we get beyond a certain point the milk costs too much. It is therefore important to know just when we are feeding enough. Suppose some of you farmers had a barn full of grain to thrash, and when the machine came into the yard you said to the engineer, pointing to the pile of wood: "That is all the wood I have for fuel, and I want you to be economical with it." Now, if the engineer got up about a 35 pound pressure of steam in the boiler and the machine started, the first few sheaves put through would stop the machine. You would be apt to rush out and ask the engineer what was the matter. He would reply that you wanted him to be economical with the wood. You would tell that man that he did not know his business; to put in the wood and get about 85 or 100 pounds pressure and get the threshing done, and move on to the next place. There are too many dairymen in this country dairying with about a 35-pound pressure. On the other hand, it would not have been economical for that engineer to have fastened down the safety valve and raised the pressure so high that the steam gauge would not indicate the pressure, simply to enable a little more grain to be put through in a shorter time. It would be likely to cause a break-down. So it is with the cow. If we over-feed and the cow loses her appetite or falls ill from being forced to a point too high, it will take a long time for her to get over the high pressure in feeding.

Mr. R. S. Stevenson, Ancaster: Give us a grain ration suitable for the ordinary farmer to feed.

Mr. Glendinning: Before giving you a ration, I would draw your attention to the fact that milk contains a high percentage of protein and fat, the nutritive ratio being 1 to 3.8 We therefore require a ration that has a large proportion of the protein element. At the same time, we must make allowance for the fact that the cow uses a large amount of energy in milk production, and this is obtained from the carbo-hydrates; therefore we

must widen the nutritive ratio. Nearly all our food stuffs are wide in the nutritive ratio. The narrow ones are bran, peas, oil-cake, cotton-seed meal, and the clovers. We make no mistake in feeding any food that contains a large amount of protein, provided we have plenty of it in bulky form.

I would suggest such a ration as 40 lbs. corn silage, 10 lbs. clover hay, 4 lbs. pea meal, 4 lbs. of bran. That would be the ration for an ordinary cow of 1,000 lbs. weight, giving 20 to 25 lbs. of milk per day. A large cow giving 60 or 70 lbs. per day would require to have the amount of food increased considerably; but that is about the proportion.

Q. Peas are getting out of the question; can you not substitute something for them?

Mr. Glendinning: That is not the case in our county; but if you have no peas, take two pounds of oil-cake and two pounds of ground oats.

Q. Or alfalfa?

A. Yes.

Q. We grow plenty of oats, but peas are out of the question. I have plenty of roots, mixed hay and oats; how would you compose the ration so as to have to buy the least meal?

Mr. Glendinning: Take 35 lbs. to 40 lbs. of roots, 10 lbs. clover hay, and 8 lbs. of oats. You would have to buy wheat bran or oil-cake, but if you have alfalfa, it will balance up the ration to a considerable extent, as it contains a large percentage of protein.

Q. Why not leave out the corn silage and clover hay and use alfalfa?

A. I would not substitute dry alfalfa for a succulent food.

Q But lots of people have no silage?

A. It would be better to have corn silage. Alfalfa is richer in protein than silage and will certainly produce more milk. It does not always pay, however, to go in for the things that are the cheapest. I think the average man will do much better feeding clover hay, or alfalfa with corn silage, than with alfalfa alone.

Mr. Clemons: I have seven acres of alfalfa, yielding 40 tons of hay. I know from experience that it will produce more milk, feeding the same amount of grain, than will silage.

Mr. Glendinning: Have you tried mixing alfalfa with corn silage?

Mr. Clemons: No.

Mr. Glendinning: That is where I think you would gain. There is no question about alfalfa being an excellent food, but I believe you require succulent food as well.

Mr. Clemons: I think it is better for the health of the animal to have succulent food.

Mr. Lewis, Elgin: We grow the Dent varieties of corn successfully in our section for the grain. We are now shelling the corn, shedding the stalks and putting them in the silo, wetting the silage down as it is put in. What would be the feeding value of this compared with the whole corn.

Mr. Glendinning: Corn silage with the grain in it would certainly be superior.

Q. We feel that there is a great deal of loss in putting corn into the silo. What is the relative value between corn put up in the silo and corn saved in the shock, and the ears ground and fed to the animals.

Mr. Glendinning: A great deal of the value of corn silage comes from the fact that it is succulent. There is a certain amount of waste through the fermentation of corn put in the silo, because the carbo-hydrates go to produce heat; but even if you shock it up in the field, there is the same waste. When corn is cut and put in the silo, it remains at practically the stage at which it was cut. When it is stored in the field or the barn, the starch and sugar gradually change to woody fibre, and by spring you have little food value in the corn stalks, and while a cow will eat those stalks readily in the fall, in the spring she will turn up her nose at them.

Mr. Ketchen: If you wet the corn left in the field before feeding it, it would give practically the same results as corn placed in the silo in the manner described if the grain were not removed from the latter.

Mr. Dryden: Mr. Lewis wants to know the difference in value between corn with the ears on and corn with the ears off.

Mr Glendinning: You must have plenty of labor if you can afford to pull the ears.

Prof Harcourt: In any substance cured in the silo, there must be a loss in soluble carbo-hydrates whether with the grain on or off; the loss would be about the same in both cases. When it comes to feeding of the silage, in taking the grain off you have widened the nutritive ratio, and when you do that you vary the digestibility of the food, so that there would not be as large an amount of digestible matter secured from the corn stalks as if the grain had been fed with them. Of course, that could be overcome by feeding grain with the ration to bring it back.

You often see figures comparing the digestible matter in grain with that of substances like straw. Supposing there is 20 per cent. of digestible carbo-hydrates in the straw and 20 to 30 per cent. in the grain, it does not mean that these two stand equal by any means, as although we may have twenty pounds of digestible carbo-hydrates from straw, it is not equal to the same amount in grain. Every bit of energy produced in an animal is at the expense of the food that is fed—in keeping up the heat of the body, in the production of growth, and in the actual work entailed in the digestion of the food. If you feed coarse food, it uses up more energy in its digestion than fine food would do. In wheat straw 75 per cent. of the energy in that substance is used up in its digestion. Some will say that lucerne and wheat bran are nearly alike in digestible matter, and therefore equal in food value, but it is not so. Lucerne has good substance, but it takes more energy to digest it than it will stand, and you will have more energy available for the production of flesh and fat in the animal from bran than from lucerne on that account.

Mr. R. S. Stevenson: Mr. Glendinning called our attention to the fact that when cows are turned out on the grass in the spring their flow of milk is increased. Prof. Harcourt has shown the reason for this,—the food is more easily digested. The same is true of roots. As a practical dairyman I may say that if our supply of roots gives out before the grass comes, the flow of milk will also decrease, no matter what else we may feed them.

THE VALUE OF INDIVIDUAL COW RECORDS AND HOW TO MAKE THEM.

By Prof. H. H. Dean, O.A.C., Guelph.

We may study the cow on the outside or from the inside; we may study her product, or we may study all three. I purpose this morning to say something about the last phase of the subject, the product of the cow. You ask the average man about his individual cows,—what they can do, how much milk they give, how much butter they are entitled to produce,—and he can tell you very little about it. I hold that the dairyman who wishes to make a success of dairying needs to know what his individual cows can do, and especially the man who breeds pure dairy stock ought to be able to give a person who comes to buy young stock from him something as to the capacity of the dam and grand dam. It is not sufficient that those animals should be perfect in form and color, and have all the fancy points, which, although they may be valuable enough in their way, are insignificant when you come to compare them with the actual producing capacity of the animal. Hence, I think the time has come when our dairymen, and especially our breeders, should give more attention to the individual records of their cows.

I purpose to deal more particularly with how the records may be made. There is a marked difference in the individual production of different cows. I hold that especially the breeder of pure bred dairy stock does not sufficiently realize the importance of this, and that our dairymen should move along that line. It is not something that is impossible. I speak from practical experience, having kept an actual record of each cow in our herd for nearly thirteen years. The man who is going to undertake this work should try to make it as simple as possible. Have every convenience for making the work as light as possible. First, I should say that each cow must have a name or number; in our case we use a number, which we place in the animal's ear. In a large herd it is difficult to find names, so we adopted the number plan, which I think is much better. Next you must have pails of uniform weight. That can be done by putting a little solder on the bottom where they re-

quire it. Third, you must have scales. Our scales give the net weight of the milk directly the pail is hung upon them.

Q. Where can you buy them? How much do they cost?

Prof Dean: They cost $5, and are bought in the United States. You cannot sell any product of them, but for dairy purposes they are very satisfactory.

In keeping the record of the milk, we use a ruled sheet with a split column in which to record the morning and evening milking. We place the cow's number at the head of the column devoted to that animal. These sheets we keep in a frame with a movable glass to protect the sheet from dirt.

It is not sufficient to weigh the milk; you must know what the cow is testing in fat; therefore we keep a bottle in which to place samples taken from the milk. Each bottle is labelled with the number of the cow, and the label covered with shellac varnish for protection. Each milker has his own row of bottles corresponding with the cows he milks. After the milk has been weighed, he pours a tiny dipper full into the bottle belonging to that cow. In each bottle we place a preservative consisting of potassium bicarbonate and corrosive sublimate, which will keep the milk perfectly fresh for a month. The test for the fat is made once a month.

I do not know that any part of our work has enabled us to improve the record of our cows, by culling out the poor ones, so effectually as this system.

As the slips become torn or are lost it is necessary to have a permanent record. Once a month, therefore, the record of each cow is transferred into a book, one page of which holds the record of a cow for a year. There is a special column on this page for remarks, in which any important facts regarding the animal are noted down; so that if you ask me about any cow in our herd, I simply have to turn to the index and look her up. I do not think the dairymen realize what value there is in keeping a record of the performance of individual cows or more of them would do it, and I think perhaps our Dairymen's Associations ought to do something to assist men who are willing to take up this work. I would suggest that these Associations should furnish suitable scales and the necessary apparatus to men who wish to keep records, and if necessary send a man to show them exactly how it is done. It might also be desirable to offer prizes for the best kept records.

Some object that you cannot depend on a man who keeps the individual records of his cows. In answer to that I would say that I always proceed on the assumption that a man is honest till I find him to be a rogue. I think that the average dairyman is honest, and we are safe in assuming that if they went into this thing under the supervision of a man who visited the farm once a month and checked the work, the information obtained would be of great value to the dairy industry of this country. I think the system might be commenced with the cows that are entered in the dairy competition at the Winter Fair. Then, after they went back to the farm, the farmer himself would continue it, and the results obtained would be of great value to the industry.

Mr. A P. Ketchen, Ottawa: From a breeder's standpoint, these records are especially valuable. Some of our breeders are already keeping them, and the time is coming when they will be forced to keep them if they wish to find customers for their stock. A record is also a great help to the feeder. If a feeder knows exactly what a cow is doing he can judge his ration accordingly, and often feed more economically. By means of a record the returns from the herd will soon be increased so far as milk production is concerned, if the plan of culling out the least productive cows is adopted. Then, too, great inspiration is obtained from keeping a record, as nothing gives a man more satisfaction than watching the improved returns from his herd. It also enables you, in selecting animals for your herd, to choose only those that are good performers as shown by the record. Have a standard, and if a cow does not come up to it discard that cow. Without a record that is impossible. A milk record will also often enable a feeder to detect the approach of sickness in the cow, and thus to take steps to ward it off. It will also increase the interest of the men in the animals under their charge.

The weigh scale is the great objection to keeping the milk record, as it is possible for a man to manipulate the scales. Supposing the milker is late in the morning and the cows

give a little more milk, he does not allow the increase to show on the card. If he is early and the cows do not give as much milk, he increases it on the card. Mr. Hodson has a scale that is self registering. A card is inserted behind the balance on which is recorded automatically the weight of the pail, so that the men cannot tell what weight has been recorded.

Q. Can he not manipulate the weight by bearing down on the pail?

Mr. Ketchen: Yes, that is possible.

Mr. Dryden: What object would a man have in view? What would he gain by increasing or decreasing the weight?

Mr. Ketchen: It is not very clear, and yet they will very often do it.

Q. What is a good standard for a dairy cow?

Mr. Ketchen: Seven thousand pounds for the milking period in the year.

Q. How do you know the best cow unless you knew how much food they were eating?

Mr. Ketchen: If you keep a record you are more likely to notice what amount of food is consumed.

REQUIREMENTS OF A CATTLE STABLE.

By A. P. Ketchen, Dominion Department of Agriculture, Ottawa.

The barn is not the least important part of a cattleman's equipment. It is not enough that he provide himself with cattle of the most approved type and breeding, nor is it enough that he feed liberally and skilfully; but, if the most profitable results are to be obtained, the cattle must be housed in suitable buildings. By suitable buildings I mean buildings that are designed to preserve the health and comfort of the cattle and to permit of their feeding and care at the smallest possible cost of time and labor.

These buildings need not be expensive. Some of the most suitable cattle barns I have seen were built in the most plain, economical manner. There is a difference between the actual requirements in a stable, and a number of other things that must be classed as luxuries, because however desirable they may be, they cannot be said to be necessities; and in what I have to say I shall endeavor to discriminate between the luxuries and the requirements

The stable should be built on a dry site, preferably the crown of some slight elevation. Until quite recently it has been the common practice to build on the face of a side hill letting the back of the barn down into the bank, often three or four feet. This has been found to be a mistake, especially in the clay districts, and has been practically abandoned. On a dry, sandy or gravelly soil, the objection to this practice is not so great; but, on a clay soil, it is next to impossible to secure a dry stable and yard on the face of a side hill, if excavated in the manner I have described. Not only have we the surface water to contend with—that perhaps could be easily diverted—but there is a constant soakage from the face of a clay slope of this kind that tends to keep the stable damp and the yards soft and muddy during a large part of the spring and fall months. Good drainage will, it is true, prevent water from actually percolating through the walls into the stable, but still the walls will be damp and cold, especially in the spring, when the ground is saturated with water. The floor, too, is brought closer to the level of the soil water and will be colder than if separated from the water table by two or three feet of relatively dry earth. To build on the level or on the crown of a small knoll entails considerably more work in building the approach; but, apart altogether from better sanitary conditions, it is well worth the trouble. The barn looks better, adding considerable to the appearance of the farm; the foundations are apt to be better, because of better drainage; and the yards are more likely to be clean and dry, an advantage not easily overestimated.

Another requirement of a good cattle barn is that the temperature must be easily controlled and must not be subject to sudden changes. To secure this, the walls must be built of some material that is a non-conductor of heat. The most common materials used for this purpose are cement or concrete, brick, and stone. Wood is also sometimes used, but in most districts it is too expensive, and is not as durable as the other materials named.

Where clean gravel can be obtained, concrete is, in my judgment, the best wall. It is strong enough to stand any strain to which it is likely to be exposed; it is the most durable wall that can be built; it is a non-conductor of heat, making a warm and dry stable; and it can be built at a reasonable cost. Brick comes next to concrete in most particulars, but generally costs more, and is less durable. Stone, because of the ease with which it can be obtained in most districts, has, perhaps been more largely used than any other material. The chief objection to stone is its dampness. Being a rapid conductor of heat, a stone wall condenses upon its surface the moisture in the atmosphere of the stable; and, as a consequence it is usually damp in mild weather and coated with hoar frost in severe weather.

Light is a feature of the cattle barn that is too often overlooked. It is known to be a a cheap and effective agent in the destruction of disease germs. A well-lighted stable is more easily kept sweet and clean. It also adds to the effective working of any system of ventilation; in fact, light and ventilation are very closely allied. In addition to this, there is a subtle, life-giving virtue in sunlight that is not well understood. It is enough to say that sunlight seems to be essential to the vigor and health of all the higher forms of life.

To secure plenty of light the windows should be of good size, and should extend well up to the sill of the barn. The larger the window the more light it will admit in proportion to the glass. In a 12-inch wall, with the light striking it at an angle of 45 degrees, as it will for a part at least of every day, a window 60 inches wide will admit nearly three times as wide a stream of sunlight as one 30 inches wide; if the wall be 20 inches thick, the 60-inch window will admit, under the same conditions, more than four times as much sunshine as the other.

The next requirement of which I wish to speak is ventilation, and now I must confess that we are confronted with a problem No one attempts to deny the importance of ventilation. The removal of foul gases and a constant supply of fresh air is just as necessary to the thrift of the cattle as food; and yet the best means of bringing this about remains to a large extent, an unsolved problem. I do not think I have yet seen an ideal system of ventilation for farm buildings. The requirements of a good system of ventilation are :—

(1) A constant change of air in the stable.

(2) The introduction and distribution of fresh air without drafts.

(3) The liberation of the fresh air at or near the heads of the cattle, in such manner that they may breathe it before it has been diluted with foul gases.

(4) The removal of foul air without condensation and consequent dripping.

(5) Economy in cost of installation.

Many systems have been devised, nearly all of which fulfil some of these requirements, but comparatively few fulfil them all. Some of these devices are very simple, but only partially effective. Others are quite effective, but too cumbersome and expensive for use in farm buildings.

There is a striking similarity in many respects between a stable and a furnace. The necessity for drafts in a furnace arises from the fact that in the process of combustion oxygen is being continuously used up and carbonic acid and other gases given off. Heat, of course, is produced, so that the gases given off in the process of combustion are warmer than the elements entering into it, and they rise in obedience to natural laws, until they are cooled to about the temperature of the surrounding air. When this temperature is reached they tend to diffuse and mix with the atmosphere. So it is in the stable. The necessity for fresh air in the stable is brought about by the continuous combustion of carbon in the animal body. It is by this means that animal heat and life is maintained. As it is in the furnace so it is in the animal body, oxygen is used up and carbonic acid and other gases thrown off. These gases thrown off by the animal in breathing are warmer than the air breathed in, and will rise until they are partially cooled, when they will begin to diffuse evenly through the stable air.

The problem it seems to me is the same in both cases; the continuous renewal of the supply of oxygen and the prompt removal of the foul gases that are produced. It is reasonable, therefore, to assume that the solution of the problem in both cases lies in the application of the same natural laws.

Now, to secure a draft in a furnace, it is important that the fresh air be admitted below the grate and the smoke drawn off from above. If these conditions are reversed, and you attempt to draw off the smoke from below the grate and introduce the fresh air from above, the draft ceases and the fire smothers, unless a fan or some other mechanical means is used to force a draft.

The system of ventilation that I am about to describe seems to me to be based on accurate, scientific principles; it has given excellent results in practice and is comparatively inexpensive.

To provide for the fresh air inlet the floor of the feeding alley is elevated twelve inches above the level of the stalls. The inlet may consist of a ten-inch tile, or a wooden box about ten inches square, running under the floor the whole length of the feeding alley. This will admit enough fresh air from fifteen cattle; if more are to be supplied, a conduit placed on each side of the feeding alley will be generally sufficient. The main inlet is tapped opposite each pair of cattle by the distributing pipe. These lead into the mangers, and are placed close against the parting blocks, their open ends being prevented from plugging with dirt by a leather flap, or some other device. The foul air is carried off by means of ventilating shafts, leading from the ceiling of the stable out through the roof. Most framers now run the purline post straight from the floor to the purline. Beside these posts is a very convenient place for the ventilating flues; they are out of the way and they are not so readily chilled as when placed against the side of the barn. Excessive chilling of these foul air outlets not only reduces the convection current, but condenses moisture, causing them to drip.

These foul air outlets should be of good size, and should extend well up beyond the ridge of the barn. If they are not carried far enough above the roof, the current will often be in the wrong direction, and instead of acting as outlets, the wind will sometimes force a strong draft of cold air down on to the backs of the cattle; just as a chimney that is too short will sometimes cause a stove to smoke.

It will be seen that by this method, the fresh air is admitted, as in the furnace, below the heating area; it is distributed evenly and without drafts; it is liberated at the heads of the cattle, giving them a chance to use it before it has been diluted with the poisonous gases of the stable; as it is heated by inhalation and by the heat radiating from the bodies of the animals, convection currents are set up towards the ceiling, and out through the foul air shafts. This system is automatic in its action; the more stock in the stable, the stronger the convection current, and the more fresh air introduced.

Another very important feature of a cattle barn is the floor. A good floor must be smooth enough to admit of being easily cleaned, but should not be slippery. It must also be water tight, so as to prevent the leaching away of the liquid portions of the manure. It is impossible to keep a stable sweet and clean if the floor is saturated with fermenting liquids. This is the great objection to most wooden floors, especially the block pavement. Cement concrete is, in my judgment, by far the best material for stable floors. The objection is sometimes urged that it is too slippery. If the floor is put in with too much fall towards the gutter, and especially if polished with a steel trowel, it is slippery, so much so as to be dangerous; but if it is put in nearly level, and finished with a wooden float, it is not nearly so slippery as a wet plank floor. Another objection that is sometimes urged to a cement floor is that it is too cold for the stock to lie on. I do not think that this objection is valid. If the floor is put in with a rough finish as I have described, it is quite easy to keep enough bedding under the cattle to prevent them from lying on the bare concrete.

Cement has been so long in use by many of the best stockmen of the country, that it is no longer an experiment, and I have never heard anyone that used it complain of its being too cold. I have noticed that most of the objections to concrete floors come from men that have never used them.

There are many other requirements of a cattle barn that I should like to discuss with you if time would permit; perhaps they will be brought out in the discussion that is to follow; but these are the essentials :

(1) A dry site; all parts of the stable floor should be kept above the level of the ground.

(2) A warm, dry wall, to allow a ready control of the stable temperature.

(3) Plenty of light, and not only light, but direct sunshine.

(4) Thorough ventilation.

(5) A dry, clean, watertight floor.

Q. In Mr. Clarke's system * the foul air is taken out at the floor; you advocate taking it out at the top?

Mr. Ketchen : After the air is breathed by the animal, it first rises, being heated, and it is then carried away by the outlet shaft.

Q. How would you prevent the intake pipe from drifting up with snow at the end?

A. It is not often that the snow will drift close against the wall; but you could erect a wind-break.

Q. Do you admit the fresh air at both ends?

A. If you have both ends open and the wind is very fierce and cold, you will have trouble; the pipe is blind at one end.

Q. Mr. Clark's system was based on some scientific theory apparently; he claimed, I think, that when certain elements were removed from the air in the process of breathing, the rest being heavier fell to the ground.

Mr. Ketchen : Many scientists argue that the foul air is always at the floor, but it is not at the floor till it has gone first to the ceiling and been cooled off.

Dr. Rutherford : I think that Mr. Ketchen's system is on the correct principle. The proper place to bring in fresh air is at the floor alone, and the proper place to take out the foul air is at the roof. Under my system the fresh air is brought in by means of "U" pipes under the wall. To carry off the foul air a galvanized iron pipe or chimney of considerable dimensions is used. This is furnished with an ordinary rain cap and a large damper is manipulated by cords from the stable floor. When this damper is open, the foul air, being warmer, rapidly rises, passes out through the chimney and is steadily replaced by fresh air sucked in through the "U" pipes. By closing the damper the inrush of air through the lower pipes is at once checked, while a partial closure has a corresponding partial action on these inlets. In this way the whole system is under easy control, and can be adjusted to suit the weather or the number of animals in the stable. There is no draft, as the fresh air is sucked, not driven in, and diffuses itself gently through the stable.

Hon. John Dryden : The only reason I can think of why I am asked to lead in this discussion is because I have been building a new barn this summer. I do not pretend to be an authority, but am seeking for information. If I were to state what I have in my mind as to the requirements of a good stable, it would simply be to emphasize what Mr. Ketchen has already told you.

There are, it appears to me, four essential points which must be borne in mind in considering the requirements of a good stable. The first of these is an abundance of light. I have handled cattle long enough to have come to the conclusion that one of the first things I require to look after is the health of my animals. I am not in accord with some of the dairymen who buy a dairy cow and rush her for all she is worth, and after she is played out, send her to the butcher and take another one. My cattle are too expensive and valuable to treat in that way, and I want them to live for twelve or fourteen years; so that it is essential for me to take every precaution to preserve their health. One of the first essentials to health is plenty of light. Therefore, we have placed in our new stable any amount of windows, and they are very large so as to permit the light to spread over the whole stable.

The next requisite to health is plenty of fresh air, and we have therefore made careful provision in our barn (which is 115 x 54 feet) for ventilation. Next year I shall be able to tell you whether the system we have adopted is right or not. Mr. Ketchen did not emphasize

* See address, "The Proper Construction of Dairy Stables," P. Clarke, Ottawa, in latter part of this volume.

the importance of ventilation any too strongly. Live stock need fresh air just as much as you do.

Another thing my cattle need is a chance to get water whenever they want it, and therefore I do not think that any stable is completely equipped unless provision is made for watering each animal where it stands. We have put in a complete "system of water-works," I call it. Long ago I discovered that cattle did a great deal better in summer time, on poor pasture, where there was a nice running stream, than in another pasture where they had more grass but more difficulty in getting water. It is not very expensive for those of you who have small stables to supply your cattle with water if you provide a well and a windmill for the purpose.

It is important that a stable should be equipped with all the labor-saving conveniences possible. Labor is scarce, and it is therefore very desirable that we should be able to attend to our cattle with as little labor as possible. One of the labor-saving devices we have in our barn is a litter-carrier, which does away with wheel-barrows. All the manure is put upon the carrier and carried into the yard with very little trouble. The location of the feed room is very important, so that the feed does not require to be carried from one end of the stable to the other. We have provided that all the food comes to a common centre where it is mixed and placed on the same carrier that conveys the manure and distributed to the various animals in that way.

Q. Do animals do better in a loose box, where water and feed is handy, than when tied up?

Mr. Ketchen: That has been the subject of a great deal of discussion among cattle men. We have fed them both ways, and have almost invariably had better results with the cattle running loose. They will eat more, are more contented with their surroundings, and are more easily fed. We have taken out the stalls for all our fattening cattle this year and are letting them run loose.

Q. Will cement when placed over the wooden floor of the granary to keep out rats and mice, injure the grain?

Mr. Ketchen: No; it will do no injury. I know of one case where it was tried and it worked very well. Use half an inch of cement. It will crack more or less, but it does not matter in a granary floor.

Hon. Mr. Dryden: In my stable, although we have cement on the floors of the stalls, we have plank on top of it. I do not think cattle do well lying on the cement, and the planking does not cost much. The planking rests on 2 x 4 sleepers, bedded in the rough cement. The horse-stalls are treated in the same way.

Q. If you wished to build a barn, say, into a four-foot bank, would not a tile put around the outside wall before building remove all dampness?

Mr. Ketchen: That would depend on the length of the slope behind your barn. If the slope is very long, and especially if you have a clay soil, when the ground is saturated in the spring the wall of the stable would be damp and cold, in spite of the tile.

Hon. Mr. Dryden: My barn is practically on the level, and yet we took the precaution of putting drains around and underneath. It is very important to keep out dampness.

Q.: I put a tile on the inside, but it did not answer; I then put one on the outside and there is no sign of dampness.

Q.: What thickness would you make the concrete floor?

Mr. Ketchen: The ordinary thickness of a cattle stable floor is three inches, but for horse stables it is usually a little thicker. The thickness will depend on the firmness of the foundation under it.

Q.: Have you any difficulty in getting cattle into the stable over the gutter?

A.: I have no difficulty; our cattle step over it.

Q.: What is the depth of the gutter?

A.: Not over six inches.

Q.: What is the durability of a cement wall? I was told of one that stood for twenty years and then went to pieces?

A.: One of the properties of good cement is that the longer it is up the better it is; but there must be no dirt or loam in the cement.

Q.: What is the cause of cattle sweating in the stable?

A.: By warming the stable at the expense of ventilation.

Q.: If cattle are not of the same length, how do you bring them back to the drainage trough?

A.: By running the trough at an angle. Another way, and I think it is the better way, is to move the manger backwards and forwards.

Mr. A. W. Smith: The drainage of the barnyard is an important matter.

Mr. Dryden: My theory is that the yard should slope towards the spot where the manure is piled, so that all the water runs in that direction and is soaked up in the manure pile, and will tend to keep the rest of the yard dry. That is the theory I am now working on.

Q.: How many feeding steers is it possible to have in a loose box stall?

Mr. Ketchen: My idea would be not to run more than five cattle in one box. If you have too many, the stronger animals are apt to crowd the others out in feeding. To overcome that, a row of stationary stanchions may be placed above the manger in which the cattle may be held while they are feeding.

Q.: What size should box stalls be?

A.: One sixteen feet square will accommodate five steers well. The larger the space in proportion to the number of cattle the more bedding will they require, and it is a good place to make manure.

Hon. Mr. Dryden: Mr. W. C. Edwards used to have a manure factory of that description, and the mangers were so arranged that they could be raised when the manure accumulated on the floor. Fresh straw was added to the top from time to time.

Q.: What height is it necessary to have the ventilation pipe above the barn?

A.: Two or three feet above the level of the ridge.

Q.: How high should the ceiling be?

A.: About eight feet.

Q.: What is the proper temperature of a stable.

Mr. Ketchen: I could not say exactly. I do not think a cattle stable requires to be so warm that it is comfortable for an idle man, and I would not have the stables too warm at the expense of ventilation. I should say 60 degrees would be about right.

Hon. Mr. Dryden: There is probably a difference of opinion between the dairymen and the beef men upon this point. Dairymen think it is necessary to have the stables at 70 or 75 degrees; I think that such a temperature is only to be got at the expense of ventilation.

Q.: How can the proper temperature be obtained except at the expense of ventilation?

Mr. Ketchen: With the sub-air duct; the temperature is much more easily controlled than where the outside air is admitted direct into the stables. It is tempered in the duct to about 45 degrees, and therefore requires considerably less warming afterwards.

Q.: What apparatus do you have to take in the air from the outside? Is an elbow necessary?

Mr. Ketchen: Not if the pipe is extended out from the stable in the trough.

Q.: Do you find that cattle feeding on silage cannot drink cold water on account of its affecting their teeth?

A.: I have had no trouble; the water may be too cold.

HOW TO SELECT STEERS FOR FINISHING, HOW TO FEED, AND PROBABLE PROFITS.

By Simpson Rennie, Toronto.

The changing of the products of the soil into that of beeves for human food is a very important industry. I have learned a little in connection with selecting steers for feeding, but I do not know everything. I have been buying and feeding for a number of

years, and I have learned through my mistakes. In selecting an animal, I do not like to judge it from a side view altogether; I like an end view as well. An animal should be a fair length, good width, and fleshy. It is a mistake to select an animal for feeding purposes that is patchy. Width is a mark of constitution, indicating good feeding qualities. It should also have a good shoulder, good brisket, a fairly short neck, broad, clean head, and mellow eyes. An animal that is narrow in the breast shows lack of constitution, and is not likely to be a really good doer. See that the animal has a good back, for that is one of the most valuable points, and has also a good length of quarter and depth of body, which, with width in front, shows good heart room and lung power.

Having selected the right kind of steer, the next point is the feeding. Where you are finishing animals in the stable in winter, they require an entirely different ration to those finished on grass. I wish to speak particularly from the standpoint of finishing in the stable.

My method of feeding is as follows: When the animals are brought into the stable, the very first thing that should be done is to clip the long hairs off the backs and apply oil to kill all vermin. This must be done at once. If it is not done, the vermin will hatch out and infest the stable, and you will have trouble for years to come. Any cheap oil will answer the purpose. I mix spirits of turpentine with the oil in the proportion of half a pint to a gallon of oil. This cuts the stickiness off the oil, and you can apply it more easily, and it is deadly to vermin. It is not necessary to apply it over the entire body of the animal, but merely along the top of the back and between the horns. Black Champion petroleum oil will answer well, costing about 25 cents per gallon.

Q.: How often should you apply the oil?

Mr. Rennie: If it is properly done immediately after the animals are put in the stable, you never have to apply it again, provided there are no vermin in the stable; but if you once get them there, they get into the cracks, and are very hard to exterminate.

Q.: How do you get them out of a stable?

A.: The best way is never to allow them to get in.

Hon. Mr. Dryden: Very few stables are free from vermin, and it is important to know how to get rid of them. I fancy a spray pump or whitewash would help to get rid of them.

Mr. Rennie: I think spraying would be better. There is a difference of opinion in regard to feeding tied up or feeding loose. My practice is to tie the cattle up, and I have yet to learn where any great gain can be made in any other way. A skilful feeder can feed to the fullest capacity of the animal if it is tied up, and I am not sure that you can feed to the same extent where there are a number of them loose. I will guarantee that the first prize animal at this show was fed alone, and not with a number of others.

In feeding, you require to make a study of each individual animal if you are to obtain the best results. The feeder should watch the trough at every feeding time. By experience he can tell whether the animal is feeding to its full capacity, by running his hand over the trough. If you find a little roughness there, you are feeding the animal to its full capacity. That is the point: feed to the full capacity without overdoing it. If you overdo it, the animal's progress will be stopped, and you lose ground.

In regard to the ration: Previous speakers have been quite right in stating that it is very important to have the water supply right in the stables. I never knew a successful feeder who turned his animals out once in twenty-four hours at zero temperature to get a drink. The water should be forced into a tank by a windmill; or it may be secured from the roof of the building, from whence it runs into a large tank, which supplies the drink basins; but no matter how it is done, the animals should have access to the water at will. If an animal is turned out to drink, it will often take such a quantity as to injure it, and it takes more food than you can afford to heat that water up to animal temperature.

In selecting a ration, we require one that will fatten an animal readily and give good profit. If an animal weighing about a thousand pounds is brought in, and is kept tied up and quiet, the following ration will be about right: 12 pounds clover hay, 30 pounds

roots, 2 pounds peas, 1 pound barley, 2 pounds corn, 2 pounds oats, and 1 pound linseed meal. I find that a ration of eight pounds will do such a steer through the feeding period; but I do not give any meal for a little time after they are put in the stable. When they are on the full ration they get more than eight pounds per day.

Q.: How many times a day do you feed?

A.: Three times; perhaps twice a day would do, but we have been in the habit of feeding three times. I have no objection to feeding silage, but if you feed more than 25 pounds, how can you balance the ration? The ration I have given is to be of good, wholesome food.

Q.: If you did not use corn, would it be all right to feed more barley?

A.: Both are high in carbo-hydrates, and if you cut down the amount of corn, you could increase the barley. I prefer corn, however; and, of course, the greater the mixture the better the result.

Q.: What importance do you attach to the skin and the hair in handling an animal for selection?

A.: I like a good, mellow hide, and long, silky hair. I never buy an animal with the hide frozen to the ribs, as the chances are that, after feeding a long while, it will still be frozen.

I fail to see that there is any advantage in cutting good clover hay or pulping roots, and have yet to find a feeder who has gained any advantage from doing so. Of course, the grain is ground, and a little chaff should be fed with it in order to give the necessary bulk. But it is far easier and cheaper to feed the clover hay uncut and the roots whole, and the results are just as good.

I do not want my animals to exercise their bodies, and an animal that is kept quiet will make greater gain. I do not understand why so many people talk about exercise, and yet go to work and pulp their roots, and cut the hay and straw, thus doing for the animal work it should do for itself. I am willing that the animal should exercise its jaws, but keep its body still.

The main point to consider is the profit. Take an animal weighing 1,000 pounds, and costing $35, or 3 1-2 cents per pound, which is low; the cost of feeding that animal for six months on the ration I have given will be $24.52. In making this calculation I have valued the hay at $5 per ton, the roots at 5 cents per bushel, the meal at 1 cent per pound. On this basis, the cost will be 15 1-2 cents per day, or $24.52 in six months. I do not usually feed for quite six months, but if we can show a profit on feeding this animal for six months, we should be satisfied. The interest on the investment would be another dollar, so that you will have to get for your animal $60.52 when finished. A reasonable gain for a 1,000-pound steer would be 300 pounds; we should expect that, in fact, I often get a great deal more, but an ordinary feeder on a fair ration should have a gain of 300 pounds. The animal would then weigh 1,300 pounds, and you should get $1.50 more a hundred than you buy them in at, or instead of 3 1-2 cents a pound, you should get 5 cents. At 5 cents per pound you would realize $65, or a clear gain of $4.48.

Q.: What would be the value of the manure?

Mr. Rennie: That is too often lost sight of. Many, unless they see a great deal of gain in dollars and cents, are not satisfied, and would rather take their grain to market. I have figured out the commercial value of the manure, provided it is properly saved. The value would be as follows: Clover hay, 12 1-2 pounds per day, equal to 2,250 pounds for six months, $8.04; turnips, 5,400 pounds, $2.40; peas, 360 pounds, $1.63; barley, 180 pounds, 42 cents; corn, 360 pounds, 88 cents; oats, 360 pounds, $1.12; linseed meal, $1.50. On this basis the commercial value of the by-product, after feeding an animal for six months, would amount to $16.35. I calculate, therefore, that a person feeding as I have outlined would make at least $10 per head from the manure, and still allow an ample amount for labor.

It is true that there are cheaper rations than the one I have given, but the commercial value would be proportionately less after it had passed through the animal. To a person who is going to fatten and finish on grass, I would not advise such a ration; I

would advise a cheaper ration. In that case I would recommend a large proportion of silage corn I do not say that the ration I have given will suit every one; some may have an abundance of one kind of grain and a scarcity of another.

Q.: What would you substitute for peas in that ration?

Mr. Rennie: You would require something equally low in carbo-hydrates; I use peas to balance. The linseed meal, which is high in carbo-hydrates, is used to balance the corn.

COST OF RAISING STOCKERS UNTIL TWELVE MONTHS OLD.

By J. H. Grisdale, Agriculturist, Central Experimental Farm, Ottawa.

Two or three questions have been asked which have received no reply. First, as to the value of gluten meal. We have been feeding it extensively at Ottawa for three or four years, and have been exceedingly well satisfied with it. The composition of gluten meal varies exceedingly, and you will require to pay attention to the class you secure. In feeding, we find it unnecessary to give such a heavy meal ration as was mentioned by Mr. Rennie. We secured good results from five pounds a day. That shows the comparative value of gluten meal. It was, of course, pure. As to the value of rape, as a fall feed for steers, we have found it exceedingly nutritious I know that farmers here and elsewhere have had similar satisfactory results. It may be sown as late as the middle of August and give good results.

Q.: What is gluten meal?

A.: It is the product from starch factories; the residue after the starch is washed out of the ground grain.

In estimating the cost of producing stockers up to the age of one year, we must first consider how they are fed. There are many ways of feeding calves for beef, and to say that it costs $10, $20, or $30 to raise a stocker would be useless, because it would not explain anything.

As to the raising of the animals. In the northern parts of the Province and in the West, the average calf is left on the cow, and the cow is allowed to roam around in the wild lands, which, of course, makes an expensive calf. It costs nearly $40 to feed a cow for a year, and the only return in that case is the calf. At the end of the year, not counting other foods, the calf will have cost you forty dollars. But, you say, it does not cost that. If you count everything in, however, you will find you cannot keep a cow a year for less than $22, and she will be kept living at that rate, and that is about all.

I have been buying in a lot of calves for the last few years from farmers in the Ottawa district, and I have found a tremendous difference in the class of cattle from which they come. If I strike a farmer whose cows are in bad shape, I find that the calves from those cows will not give satisfactory results, not at all equal to the results secured from calves from cows fed properly. One man's steers may be quite as well bred as another's, but if the cows have not been properly looked after, they will give entirely different results when it comes to feeding them. It is, therefore, much more profitable to wean the calves from the cows, because, besides having sufficient milk, combined with other foods to raise the calves, you will have some over to send to the factory. You can supplement the milk fed to the calves more cheaply with meal. To produce a calf in that way costs about $25 up to a year old, putting everything at the highest valuation. At the end of the year the calf will be worth $25 to $30, and a man will have a chance to make a little profit. Another way is to wean the calf on skim milk and oil cake, linseed and other meals. In this way we have been able to produce calves for $18, at one year, worth about $30. Such calves will weigh from 725 pounds to 750 pounds. It will pay every time to feed the calves well. Too many make the mistake of stinting their young animals. It is sometimes necessary where cheese factories are in vogue to feed the calves whey, aind supplement with grain or meal. Calves so fed are more difficult to raise and handle, and do not give as good returns. In almost every case where skim-

milk calves have been raised in the Ottawa district, by men who have good Shorthorn sires and cows, the animals have been worth from $8 to $10 at the end of the year. Wherever a dollar's worth of extra food is put into a young calf, much more than a dollar's worth of gain is reaped. We are able to produce meat that costs us from one and a half to two and a half cents, according to the difference in the cost of the feed and the individuality of the calf.

Mr. John Davidson : I can endorse what has been said in regard to rations. The most important thing is to get a man who knows how to feed ; if he will not feed right, you cannot hope to be successful. One reason why we do not get better prices for stockers is that we do not feed them sufficiently. Get a good Shorthorn sire, and you will get the right sort of stockers, no matter what the cows are.

Q. : Do you keep young animals out of the sun ?

Mr. Grisdale : Yes, during the first summer The profit is made by forcing the animals along while they are young. We have been carrying on experiments for five years to determine the most economical age for the production of weight in steers. We have fed steers that would be one, two, three and four years old in the spring, and the cost of producing a pound of beef has been as follows, valuing the feed at current market prices : On a steer coming four years, 7 1-2 cents ; on one coming three years, 6 1-2 cents ; on one coming two years, 4 1-2 to 4 3-4 cents, and on one coming one year, 2 3-4 to 3 cents. The chief increases are made when the animal is young ; the older it gets the harder it is to put on a pound of flesh. That indicates the importance of feeding animals while at an early age. Every time we have fed young animals in comparison with old animals, we have had similar results.

Q.: Are young animals capable of eating the same rough foods as those that are more mature.

Mr. Grisdale: We feed the same feeds ; of course, you must feed meal in any case to a fattening animal.

Q.: But in reference to their digestion ?

A.: We have never had any trouble with their digestion.

Q.: Do you pulp your roots ?

A.: Yes, for the reason that we feed silage and straw along with the roots.

Q.: Do you boil the linseed for young calves ?

A : No ; merely steep it, otherwise it spoils its digestive properties. Bring your water to the boiling point, and then put it on the back of the stove and put the linseed meal into it, but keep it from actually boiling. Soaking helps the digestive qualities, but boiling injures them. After the calves get so that they can take dry food, you should feed the meal dry. Be careful to keep things clean ; do not allow any sourness about the feed troughs, and do not make any sudden changes in the food ; if you change, change gradually, or scours will be the result. If you start with skim milk, continue with it ; do not give skim milk one time and whole milk another. The digestive organism of these young animals is very sensitive ; they will stand a change if the change is made gradually, otherwise it will bring on digestive troubles.

Q.: Do you brush your animals every day ?

A.: I would not advocate that ; but I believe it is desirable to keep them clean and nice We have a power clipper. and as soon as the steers go in, we clip them along the back and rub in oil to get rid of vermin.

Q.: Is it possible to get as good a calf by hand, feeding as if it were allowed to remain with the cow?

A.: You will get better results from nature's method, but it is too expensive. The cost of keeping a cow for twelve months under normal conditions is $35 to $45, and as the calf is the only result, it makes a very expensive calf.

Q.: When do you castrate calves ?

A.: That is a debatable question I believe it is advisable to postpone to three months ; but as a rule we castrate at three or four weeks. The longer period improves the front of the animal, and gives it a more masculine appearance.

Q.: Is kerosene emulsion satisfactory for oiling cattle ?

A.: It would be all right, but it is a little troublesome to make. Clip the steer from the back of the head and right to the tail, and down the tail three or four inches ; take a bit of rag, dip it in oil, and rub it in.

Q.: What about lice on other parts of the animal ?

A.: That will cure them.

Q.: Do lice remain in the pens ?

A.: Yes, they do ; and we find it necessary to spray the pens.

Q.: What spray do you use ?

A.: Lime wash, with some carbolic acid would be effective. If you did not want to whitewash your pens, McDougall's dip would be satisfactory. For sheep and pigs we use McDougall's dip to keep down vermin.

SELECTION AND FEEDING OF STEERS FOR EXPORT.

By G. E. Day, Professor of Agriculture, Ontario Agricultural College, Guelph.

In the first place, it must be remembered that to produce a carcass of beef of the best quality, a steer must possess a large proportion of the blood of some recognized beef breed. Steers possessing considerable dairy blood may give rapid and economical gains, but the carcass of beef from such a steer does not carry so large a proportion of valuable meat as that of the strictly beef animal. This point has been demonstrated in many experiments. The dairy-bred steer has a tendency to form a large amount of fat that is not edible, whereas those portions of the body which carry the most valuable meat are poorly developed and lacking in covering of flesh.

While it is impossible to say exactly how the animal will feed simply from inspecting it, at the same time, there are certain features which are peculiar to the animal which will make rapid and economical gain in weight, and which possesses the constitution to stand heavy feeding. A good type of steer should possess a deep body, broad back, short neck, moderately fine bone, thick, fine coat of hair, and a somewhat thick but mellow skin, which moves freely under the hand over the underlying tissues. When the hand is laid flat upon the ribs of the animal and pressed against them, a mellowness and elasticity should be noticeable, which indicate a ready fattener and a good quality of flesh. The animal which has a thin, wiry coat of hair, and which feels hard and unyielding when the hand is laid on the rib, is seldom a quick feeder, and does not possess the thickness of flesh which is desirable in a beef animal. Of course, we do not expect that a thin steer will handle like a fat steer, but, in handling a thick-fleshed animal, that mellowness of handling, previously mentioned, is noticeable, though the animal may be comparatively thin.

It is desirable to have good depth and thickness at the heart in order to indicate constitution ; but there should be proportionate development towards the rear of the animal where the meat is more valuable. Viewed from the side, the steer should present a well-balanced appearance, that is to say, he should not show an undue development of forequarter in proportion to hindquarter, because the forequarter is of less value than the hindquarter. Beware of the steer with extremely heavy shoulders, and coarse, "oxy-looking" head and horns. A full, bright eye and wide muzzle are also indications of breeding qualities.

Young animals require less food for a pound of gain in weight than older animals, consequently, young steers are more economical producers than steers which are nearly, if not quite, full-grown. It is seldom possible, however, to buy steers heavy enough for making export steers with one winter's feeding younger than two years old In buying feeders, therefore, two-year-old steers are, perhaps, safer to buy than younger ones, unless the young steers should be particularly well-grown. On the other hand, three-year-old steers should be avoided, as they require too much food to produce a pound of gain.

A point which is difficult to decide is whether it pays better to buy fairly heavy, fleshy steers that can be finished in three or four months, or to buy lighter, thinner steers, which will require to be fed about six months. Of course, if they could be bought at the same price per pound there would be no difficulty in deciding, but the heavier and fleshier steers, which we may call short-keep steers, cost more per pound than the thinner, or long-keep steers.

At the Ontario Agricultural College, we have conducted several experiments along these lines, but so many things enter into the problem that it is impossible to draw definite conclusions from the work that we have accomplished so far. It is our intention to carry the work further, and attempt to reach something like satisfactory conclusions. A peculiar feature of the case is that the long-keep steers have always produced cheaper gains than the short-keep steers. It is impossible, however, to produce a pound of gain in live weight at the price per pound for which live animals are sold. There is, therefore, a loss on every pound of increase which a steer makes, and the more pounds of increase which he is required to make before he is fit for market, the greater the loss will be. Thus a steer which requires to gain only two hundred pounds before he is fit for market, will give a smaller loss than the steer which requires to gain three hundred pounds before he is finished. It is true, as mentioned before, that the long-keep steer can be made, with careful feeding, to produce a pound of gain at a less cost than the short-keep steer; but this difference in favor of the long keep steer is not sufficient to counterbalance the disadvantage in having to put on a greater number of pounds. The only chance of profit that the feeder has is in making the carcass which he purchased worth so much more per pound than he paid for it that it will wipe out the loss incurred in producing the gain in weight. This being the case, it follows that a person can afford to pay more per pound for a fleshy steer which can be finished in a short time than for a thin steer which requires to make a larger gain, and consequently calls for a longer period of feeding. How much this difference may amount to depends upon a number of circumstances, such as the price at which the steers are sold, the cost of the foods used and other considerations. It is seldom that the difference is less than 25 cents per hundred in favor of the short-keep steer, and it may run as high as 75 cents per hundred, or perhaps even more under certain conditions. So far, however, it is impossible to give exact figures, and, indeed, it may never be possible to do so. At the same time, however, the feeder may rest assured that he can usually afford to pay from 50 cents to 75 cents per hundred more for good steers than for inferior ones.

The best time to buy steers for winter feeding depends upon circumstances. We have had very good results from buying during the latter part of August, or beginning of September, and allowing them to pasture on rape or grass for a couple of months before putting them into the stables. They will make very fair gains during this period, and come into the stable in good condition for feeding. Of course, if one has not abundant pasture, it is poor policy to buy steers early and have them running on a pasture where they will not make reasonable gains in weight.

There is a marked difference between American and Canadian methods of fattening steers. American feeders, particularly those in the corn belt, feed an extremely heavy meal ration, and a comparatively light ration of bulky food. In this country, where the price of grain is high, and where we usually have an abundance of either roots or silage, we can feed steers much more economically by using a somewhat light meal ration. In our experiments here, we find that it is very easy to feed steers more meal than they can use to advantage. In feeding short-keep steers, we usually commence with about half a pound of meal per day per 100 pounds live weight of the animals. This quantity of meal is gradually increased until, during the last month of feeding, the steers are receiving about one pound of meal per day per 100 pounds of their live weight. The increase of the meal ration, however, is governed according to circumstances. If we think the steers are not going to be ready at the time we desire to market them, we increase the meal ration more rapidly than we would otherwise do. The bulky part of their ration usually

consists of either cut hay and silage, or cut hay and pulped roots, which are mixed together about twenty-four hours in advance of feeding. When hay is scarce, we feed either chaff or cut straw in place of part of the hay, usually mixing about equal parts of cut hay and straw or chaff, as the case may be. The main advantage derived from mixing feed as described is the fact that it makes the bulky fodder more palatable. If a person is feeding a good quality of hay, then it is doubtful whether it would pay to pulp roots and mix the feed as described. When the hay is of a somewhat inferior quality, however, we believe there is a marked advantage from cutting and mixing with pluped roots, or silage. We believe, however, that it pays in any case to cut the hay in preference to feeding it uncut.

In the case of long-keep steers, or those which are to be fed six months or more, we feed very little meal during the first month they are in the stable; usually not more than two or three pounds per day to each steer. During the second month the meal ration is slightly increased, and with each succeeding month it is increased more rapidly, until, during the last month, they are frequently receiving nine or ten pounds of meal each per day. Our meal ration for long-keep steers averages for the whole feeding period about half a pound of meal per day per 100 pounds of the average live weight of the steers.

As to kinds of meal, corn is one of the most fattening grains on the list, and makes a capital food to constitute the main part of the meal ration when it can be obtained at a reasonable price. We find it an advantage to mix a few oats, or even a little bran, with the corn meal in order to lighten it. When we have no corn, we generally use barley and oats, or barley, oats and wheat, although, as a rule, wheat is rather too expensive to use for this purpose. In mixing barley and oats, we usually mix about two parts of barley to one part of oats. Peas would make a good addition to this ration. Equal parts of peas, barley and oats makes a very satisfactory ration for fattening steers. Unfortunately, however, it is almost impossible to procure peas in many districts of Ontario.

A problem which has attracted a good deal of attention is whether it is better to feed the steers in loose boxes or to tie them up in stalls. A number of experiments have been conducted along these lines with somewhat varying results. As a rule, steers which are fed in loose boxes have a better appetite, and are less likely to go "off-feed" than those which are tied up. It is doubtful, however, which method will give the cheaper gains, taking one year with another. One objection to feeding loose steers is that if they are not dehorned when purchased, the operation has to be performed afterwards, and sometimes it requires several weeks for a steer to fully recover from the operation. There are advantages, however, in loose feeding when buildings are well adapted to this purpose, particularly in regard to cleaning out the stables. The question requires considerable further investigation before definite conclusions can be drawn.

In order to make good gains, steers should be kept in absolute quiet. Anything which tends to rouse them or make them nervous interferes very seriously with their gain in weight. It should also be noted that they are free from lice, as a lousy steer will not make the best use of his food. Cleanliness with regard to mangers is extremely important, and the animals should be fed only what they will eat up clean before leaving the manager. Regularity in feeding is another important matter. Whatever hours are selected for feeding should be strictly adhered to, and they should be fed at the same time to a minute every day. Whether they are fed twice or three times a day seems to make comparatively little difference after the animals become accustomed to either plan. Whether the cattle make rapid or slow progress, depends almost entirely upon the skill of the feeder. He must be a man of intelligence and good judgment, and must make a special study of the animals under his charge. Unless a man fully realizes the importance of knowing the smallest details in connection with his work, he will never make a successful feeder. This is something which too few men appreciate. It is not necessarily the man who gets the animal to eat the largest quantity of food who will get the largest gains, but it is the man whose whole interest is centred in the animals, who watches everything in connection with them, and who is willing to sacrifice his own comfort and convenience to that of the animals under his charge.

Q.: If you were selecting steers for fattening, which would you prefer, two-year-olds weighing 800 pounds, or three-year-olds weighing 1,000 pounds ?

Prof. Cumming (who had read the paper in Prof. Day's absence) : It would cost more to put the gain on the three-year-old steers, so far as our experience goes. Under all circumstances, the two-year-olds are better than three-year-olds.

Q.: What is the average weight of feed that a three-year-old steer will eat ?

Prof. Cumming : We are feeding at present (March) from 38 to 40 pounds of turnips, 12 to 15 pounds of hay, and 10 pounds mixed meal per day to steers of the kind you refer to ; to start with, they would get only 5 or 6 pounds of meal.

Q.: Is not that pretty heavy feeding ?

Prof. Cumming : Not for a large-sized steer.

Q.: How do silage and roots compare ?

Prof. Cumming : Our experience goes to show that we get about equal gains from a pound of either, but the results are slightly in favor of silage as regards cost.

Q.: Which produces the cheaper gain ?

A.: Silage.

Q.: How many pounds per acre of the different feeds can you raise ?

A.: We raise about 15 tons of silage, and from 700 to 800 bushels of turnips per acre.

Q.: How does silage compare with corn ?

A.: The value of silage consists not only in its feeding value, but in its succulency. A succulent food has a value beyond its nutritive value.

Q.: I refer to corn in the field.

A.: We have not concluded any experiments of that nature, but in the United States, where corn in the field has been taken care of, they have got about equal results.

Q.: Is there any advantage in feeding roots and silage both ?

A.: I think that the ideal ration, in feeding silage, is to feed from one-third to one-quarter of roots with it ; it makes it more palatable.

Q.: Do you prefer to feed meal dry or wet ?

A.: When you feed dry meal the animal masticates it better, and more perfect digestion results. In the case of hogs you will get slightly better results with dry meal ; we have not conducted experiments with steers.

Q.: When you feed succulent foods do you give water ?

A.: Yes.

Q.: How often do you feed ?

A.: We feed the ration I have given twice a day.

Q.: Do you feed the meal ration on the corn, or by itself ?

A.: By itself.

Q.: Did you ever experiment with mixing all the feed, dampening it half a day ahead ?

A.: We make a constant practice of that. We feed a great deal of cut straw, etc., which is not very palatable, and if you mix it as you suggest, it makes it more palatable.

Q.: Don't you think the cattle would assimilate the grain feed better if mixed with silage, cut hay, etc.; pea meal, for instance,—I think you would require to mix that with the other feed ?

Mr. Grisdale : We find that the best plan is to mix the roughage by itself. Give each animal the amount intended for that animal, and on top of that put the meal and give it a stir in.

Q.: What hours do you feed ?

A.: At six o'clock in the morning and five in the afternoon, and they are watered twice a day, at 9.00 and at 4.00.

Q.: Would you give cattle that are not fed roots all the water they can drink ?

Prof. Cumming : Yes ; in any case give them all the water they will drink.

Q.: What would you use as a substitute for roots and silage ?

Prof. Cumming : Common coarse fodders and a little more bran ; bran would be a good substitute ; but we do not feed bran for fattening steers, as it does not matter about their digestion. With corn meal, you invariably feed a certain amount of bran.

REQUIREMENTS OF A SHEEP PEN.

By John Campbell, Woodville.

In the past, proper attention has not been given to the housing of sheep. We shall have to consider the habits of sheep in order that we may know what the requirements of a sheep house are. In the Old Country at lambing time ewes are housed and sheltered when storms prevail, but during the rest of the time they run in the fields with merely the shelter of the hedges. There is no country in the world where they reach the same stage of perfection as in that country. If you study the habits of the sheep here, you will observe them on the roadside. You will not find them lying in the low places or on the grass; you will find them lying right in the middle of the road in a hard and dusty place. That proves that sheep like dry ground. Therefore, one of the first requirements of a sheep house is that it be built on high, dry land, and not in a flat or damp spot.

In this country, with its long winters, it is essential that sheep should be dry under foot at all seasons. The pen must be dry, and the sheep must be kept properly bedded. The second requisite is that sheep be kept dry overhead.

Another thing that has not been given proper attention to in the past is the lighting of the sheep house. The building should be so constructed that the sun may shine in all day long if possible. Sunlight is essential to health, especially for young lambs. Those who are growing early lambs will find it especially important. There is something in sunlight which gives them energy and strength as nothing else will do.

The next essential is good ventilation. Sheep love fresh air, and ventilation is, perhaps, more important with sheep than with any other class of stock. They want coolness as well, because nature has provided them with a very heavy fleece.

A yard for exercise should be the next consideration. One of the most common mistakes made in this Province in sheep raising is that the sheep are too closely housed.

I once heard you say, Mr. Chairman, that it was very healthful for lambs to get a good run by the roadside. That is true, and the reason for it is that they require plenty of exercise. It is a great mistake to keep ewes in lamb closely penned. Exercise for the ewe is essential in order that the lamb may have constitution and be ready to take its feet as soon as it is dropped.

It is important that proper care be given to the construction of feeding racks. Too often any kind of a rack is put up and there is a great deal of waste. Two points should be kept in view, first, that the sheep may reach the food readily, and, second, that it should be so situated as to prevent waste. It is very necessary that breeds of sheep which have wool on the head and face should be able to feed without damaging that wool.

Water should also be provided in the sheep house, so that the sheep may drink whenever they desire to do so. Many will argue that sheep, in the winter time especially, if fed an abundance of roots, do not require water. That is a mistake, for if you observe them, you will see that when they are outside they commence licking the snow. They will not do this if properly watered.

To do their best, sheep should have salt before them every day of the year. They will then not gorge themselves as they will otherwise do if given salt only occasionally, say, once a week or once a month.

A root cellar is an essential to successful sheep husbandry, and it should be a part of the sheep house. If the roots have to be brought from a distance, they are not likely to be fed as regularly as they should be, nor in sufficient abundance, because of the trouble involved.

If there is one thing that will help the growth and development of lambs more than another, and keep them in good condition, it is rape in the fall, and roots during the winter months. In feeding roots, they should be cut in strips. Sheep like them that way, and there is no waste in the feeding. There are machines on the market in Canada for that purpose.

If feed for sheep is stored overhead in the sheep house, it should be in such a way that the steam and ammonia arising from the pens will not pass through it and make it less palatable to the sheep. The feeding racks should be used as divisions between the pens in the sheep house, and should be so arranged that the feeding may be done without going among the sheep or carrying feed over their backs. A good deal of economy can be practised in the sheep house by having the racks conveniently arranged.

Q. What distance should the uprights for the feeding racks be apart?

A. Sufficiently wide apart for the sheep to get their noses through.

Q. How do you keep sheep-droppings from getting into the troughs? I experimented a whole winter with that, and found that the best way to prevent it was to have a step in front of the racks.

Q. Do you recommend cement floors?

Mr. Campbell: No; I would not recommend them except in feed room. The floor should be thoroughly drained, if the soil is at all damp.

I will mention a few "must nots" in connection with the management of sheep. First, you must not allow sheep to run with any other stock if you want to get the best success. This is a very common mistake. Second, you must not have draughts in the sheep house. While I believe in thorough ventilation, you must not allow the wind to drive over the sheep. If you have a sheep house with three sides, you can close up the side from which the wind is blowing and open the lee side. Third, you must not have dirty feeding troughs. I admit that it is difficult to keep them clean, but they should be cleaned every time before fresh feed is put in. Fourth, the sheep house must not be too warm. I have seen sheep kept in the same basement with horses and cattle. This is very harmful to sheep because the stable has to be kept warm enough for the other stock. You cannot give sheep too much fresh air; if you keep them out of draughts, the more air they get the better. Some will ask how is this to be accomplished, and yet the roots be kept from freezing. If the root cellar is built of stone with double doors, there will be no trouble.

Fifth, you must not allow manure to accumulate so that ammonia is present. Plenty of straw must be kept in the pens, but it must not be allowed to heat up. Pens should be cleaned once every month or six weeks. Sheep want dryness, fresh air, cleanliness. And the only way you can make a success of sheep is to observe these points.

I believe it is one of the greatest mistakes on many farms that no sheep are kept. After giving close attention to all kinds of stock for many years, I can unhesitatingly say that there is no class of stock which will give as much profit, considering the cost and labor, as sheep. There is no business I can recommend more highly than the winter fattening of butchers' lambs, and I do not know of any line of stock-raising that there is more profit in It has been stated, and I believe truthfully, that a hundred pounds of lamb can be produced more cheaply than a hundred pounds of beef. The average price of lamb in February and March will be fully a dollar a hundred over the best grades of beef cattle, taking a period of ten years.

Q.: Is there nothing that will take the place of roots in the winter feeding of sheep?

A.: I do not think there is. There is no part of Ontario where roots of some sort cannot be grown.

Q.: Have you had any experience with mangels for sheep?

A.: I like them for the spring; but they should be very carefully fed to ewes in lamb. I have seen bad results over and over again in such cases, and am convinced there must be something hurtful in mangels and sugar beets for ewes in lamb. A week after the lambs are dropped, there is no danger when used in proper quantity.

Q.: Will not that apply also to turnips?

A.: Not so much; at the same time I think many make the mistake of overfeeding turnips to breeding ewes.

Hon. Mr. Dryden: Do not give ewes in lamb too many roots of any kind. I remember visiting a gentleman's farm in England at a time when he had just lost a number of his yearling rams. The reason he gave for it was that the rams had been fed too many mangels.

Mr. Campbell: In England they prefer the yellow mangel to the red.

Q.: Have you had any experience in feeding alsike hay to sheep during the winter?

Mr. Campbell: Yes; mixed with other hay.

Q.: Are your sheep troubled with ticks?

A.: Yes, all sheep are; but it is very easy to get rid of them. The sheep should be dipped a month after shearing, and again in October. Ticks make sheep very uneasy during the winter and prevent them from doing well.

Q.: How many pounds of pulped turnips per day should be fed?

A.: For breeding ewes in lamb I should not like to recommend more than two to three pounds per day. When grain is fed, roots may be fed with less danger. If you give a limited quantity of both, you will get far better results.

Q.: Do you mix sulphur with salt?

A.: Sometimes, but I do not recommend it.

Q.: The greatest trouble we have is with dogs, and I think that the assessment on dogs should be made high enough to allow the municipality to pay the full value for sheep destroyed.

Q.: I keep bells on my sheep to keep dogs from attacking them.

Hon. Mr. Dryden: That might frighten some dogs.

Mr. Campbell: For twenty-two years my sheep have been placed in a dog-proof yard every night, and I can sleep soundly, knowing that my sheep are safe, law or no law, and I think the sheep do better for sleeping on the ground.

Hon. Mr. Dryden: I will tell you how I keep dogs away from my sheep. I do not keep any dogs myself, nor will I allow any one connected with me to have them. If a stray dog comes around at night, we keep a gun handy, and the owner does not find him in the morning. The principle of the bill which I originally introduced into the Legislature was that a dog running loose and beyond the control of his master was a wild animal, and should be treated as such; I wanted to put the onus on the owner of the dog to take care of him. If the owner was not there to take care of him, I wanted the privilege of taking care of him myself. But when the bill was under discussion I found that three-quarters of the members of the House were sportsmen, and did not want their dogs molested, and opposition to the measure was very strong. At the same time, some of the very men who were urging me to fight the thing through—and sheep men at that—made political capital out of it, and went to voters in my constituency urging them to vote against me because I wanted to put a tax on their dogs. Nothing would induce me to take this matter up in the Legislature again. I got this far, however; I secured the privilege of shooting a dog that trespassed on my farm between sunset and sunrise; or I could shoot him at any time if he was molesting my sheep; and that is how the law now stands. I am naturally fond of a dog that knows how to behave himself, but I like my sheep and cattle better, and therefore I will not have one around. Nine-tenths of the dogs that are kept do not know how to behave themselves, and are of no particular use. It is a very difficult question, and I do not think we shall ever have a better solution of it than we have now.

Q.: Does the law apply to all farms?

Mr. Dryden: Only to farms where sheep are kept.

A. W. Smith, Maple Lodge: Before I take up the subject in hand, I should like to say a word or two regarding the decrease in the number of sheep in Ontario. There is no doubt that the dog nuisance is a great menace to the profitable raising of sheep. Mr. Campbell has suggested a very good method of guarding his sheep, and I think that in nine cases out of ten it could be carried out. In our own case, we succeeded in doing it, and so far we have never had a sheep killed. We do not house them, but simply have paddocks close to the buildings, and the sheep are brought there every night. It is true that dogs will occasionally break into such paddocks, but this is rare, and a little protection of this kind will overcome the difficulty largely, especially here in Ontario, where the farms are not very large, and the flocks not extensive, and do not occupy land at any great distance from the buildings. If you want to be successful in sheep raising, do not put sheep on permanent pastures, and particularly on land that has been previously pastured to sheep. I speak of the farmer who is in the habit of putting his sheep out on far away permanent pastures. I am positive

you cannot have success in that way, as the land becomes full of parasites, which will infect the flock and give you trouble. The best success is attained where the sheep are pastured on the farm on which you carry on a regular rotation of crops, so that the pasture is broken up frequently and all parasites destroyed. But, some will say, if we do that and turn our sheep in where the cattle are, the cattle will not thrive on account of the sheep pasturing too closely. Sheep will bite too closely if there is not a good full bite for them to get, so will cattle. The remedy is not to carry too many head on your pasture. If it is convenient to have sheep and cattle running together, do not attempt to make the same pasture carry both at its full limit of either.

For a number of years the price of sheep has not been as good as we could wish, and comparisons have been made with cattle and pigs. Pigs have been very profitable for a few years; but if you will look into the matter closely, you will find that in making such comparisons, the wool is not taken into account. If you add the price of the wool, I believe that sheep have been as profitable as cattle, and possibly more so. With pigs I have not had as much to do.

I think that the size and breed of the sheep has considerable to do with the quantity of roots that can be fed them. We have a large breed of sheep, and my experience is that we can feed a larger quantity than has been given, either of mangels or turnips, to ewes before they lamb. I should not like to say, however, that you can exceed four pounds. After they lamb, we give them all the mangels they will eat. We do not give the rams any mangels, as I have seen trouble arise from doing so in other flocks.

With regard to the height of the pens in relation to ventilation, Mr. Campbell did not touch on that point. I believe that it is very desirable to have the ceiling high enough, and it is a point that is often neglected, and the ceilings are usually too low. My ideal height for the ceiling is twelve feet.

Of the parasites common to sheep in this country, stomach worms are the most troublesome.

Q.: Do you wash sheep before shearing?

A.: I do not think it desirable.

Q.: At what time do you shear?

A.: Usually about April 1st. Show-men are charged with shearing a great deal earlier than that, and they do, but we shear ours during the first nice weather after March 1st, and believe it is to our advantage. When sheep are shorn in the fall, or, say, about Christmas or January, they have of necessity to be put in a warm place, because they are not able to stand the outside temperature. We keep them in the fleece till the 1st of March, and keep them outside as much as possible, and believe we have healthier sheep, and that they come on in better condition after shearing till show time and give a better fleece of wool.

Hon. John Dryden: We use a power machine for shearing our sheep. I think it is the most admirable implement we ever had on the farm, saving time and doing the work better.

Q.: What is the price?

A.: About $15. It is not made in Canada. I secured mine in Chicago.

A FLEECE OF WOOL.

By David McCrae, Guelph.

Referring to the discussion that has been going on, let me say, first, regarding exercise, that it is one of the most difficult questions we have to contend with on account of our long winters. It is especially important that breeding ewes should have exercise.

I sold my wool last year at eight cents unwashed. I can remember a time when such wool would have brought 50c. Why the change? Several causes have been at work in the interval, including the development of the sheep industry in Argentina and Australia,

but the chief cause is found in the development of the shoddy industry. There is a very large quantity of rags and shoddy imported into Canada every year free of duty. Wool is almost indestructible, and manufacturers have discovered the secret of working it over and over again. A large amount of the woollen goods turned out in Canada are mixtures of wool, cotton and shoddy. Some have no fresh wool in them at all. I have seen shoddy so short that it could not be handled with a pitch-fork, but had to be fed to the cards with a shovel. Shoddy is the remnants of old woollen goods, torn apart, and is then worked up again into cloth. It is difficult now-a-days to get a suit of clothes that has not some portion of it made from cloth that has been worn by two or three people before you. Of course the use of shoddy has brought down the price of woollen goods.

In former years, the Cotswold and Leicester breeds were valuable for a wool that was combed and made into bright lustre goods. In Australia these breeds were crossed with the Merino. This produced a combing wool of really better and finer quality than that of our Cotswold, Lincoln, and Leicester sheep.

The leading causes in the decrease in the price of wool therefore are: The introduction of shoddy, the great development of the wool-growing industry in Australia and South America, and the lasting quality of wool, and therefore its accumulation in the world.

There are some other minor causes why Canadian wool does not bring good prices. First, we have to feed inside in winter time. Some have not good racks, and the wool gets full of pieces of hay, etc., which is a great detriment and requires complicated machinery for taking it out. South America wool never has that drawback. Burrs are another nuisance. These have to be clipped out by hand. To grow good wool, you must feed your sheep carefully and very regularly. If a sheep is sick at any time, there is apt to be a corresponding weak place in its wool during that period, and the wool will be what is termed "brashy." Wool is very much stretched in the process of combing. Australian wool will sometimes stretch to five times its original length; our wool will stretch to three times its length. If there is a weak place in that fibre it breaks in the stretching process. The reason why woollen clothes shrink is that the wool has been stretched in the process of manufacture. Carded wools are not stretched to the same extent as combing wools.

There are two ways of manufacturing wool, first by carding, and, second, by combing. In combing, the fibres are laid perfectly parallel, drawn out and twisted together. It is impossible to work shoddy into wool of that kind, but manufacturers overcome the difficulty in this way: they make a very beautiful combed yarn and face the cloth with it, using a backing of shoddy. This gives a good appearance and also weight.

Q.: Was the wool fine or coarse that you sold this year at 8c?

A.: It was Cotswold. What did you get for yours?

A.: Ten cents; it was fine wool,—Shropshire.

Mr. McCrae : Shropshire wool is a medium wool. I regret very much that the limited time prevents my giving the address on this subject I had prepared.

HOW TO FEED BACON HOGS FOR MARKET.

By G. E. Day, Professor Agriculture, O.A.C., Guelph.

I am sure that those who have looked over the swine exhibit here this year, especially the bacon classes, will admit that very great progress has been made in this department, and that we have men in this country who can not only feed, but can also breed hogs that will produce the best quality of bacon for the British market. I do not think that I ever saw quite so good an exhibit of the bacon type as we have here.

Everyone understands that before an animal can be fed to advantage, he must be bred right ; but, since the question of breeding is to be dealt with at another time, I shall say nothing along that line. I should like at this time, as on previous occasions, to emphasize the importance of the question of quality in all products. We are too apt to think that quality affects only the consumer; we lose sight of the fact that in the long run it is

bound to come back to us as the producers. We have a reputation to maintain in the British market against the superior bacon of Denmark and Ireland, and every shipment of inferior Canadian bacon that goes to the British market has the direct effect of injuring our reputation in that market, and it is much easier to lose a reputation than to gain one. Every feeder, therefore, is most intimately concerned in the quality of the bacon he produces.

I think that the question of soft bacon has been pretty well discussed on previous occasions. However, I shall take the liberty of mentioning a few points in connection with it for the sake of those who have not heard these discussions in the past. In this connection, I might say that many persons confuse the term soft with fat. Soft bacon is not necessarily fat bacon. You will find more soft sides among the bacon from very lean hogs than from fat hogs. By soft bacon we mean that the fat is soft and spongy, and really soft bacon is absolutely worthless. There are all stages between the very soft side and the firm side. Any degree of tenderness injures the value of the bacon, and causes it to be sold as an inferior grade. In connection with that, I should like to mention a few of what I consider are the principal causes of softness in bacon, basing what I have to say very largely on our own experimental work, although I feel at liberty to draw on the work of others also. I believe that one of the great causes, and perhaps the greatest cause of all, is the exclusive feeding of meal when the hogs are kept in comparatively close confinement. We have fed hogs upon different kinds of meal rations that we thought were well suited to produce firm bacon, and they turned out to be tender, and we were at a loss to know the cause. We set to work to vary the ration, and we soon found that where hogs were fed upon an exclusive meal ration, especially when in close confinement, many of them turned out too soft. If hogs have exercise, and you feed them upon meal exclusively, you will very seldom find anything approaching softness. You may feed almost any kind of meal if the hogs get plenty of exercise.

As to the foods that are in themselves injurious, I think that perhaps corn is the most objectionable. This conclusion has been borne out by our own experiments, and by experiments at the Central Experimental Farm. Therefore, corn has to be used with a great deal of care if we are to produce first-class bacon, but a small amount may be used under certain conditions. At Ottawa, they found that beans had a very similar effect. Another very common cause of softness is a lack of finish, that is to say, hogs are marketed before they are fat enough. Even a bacon hog must have a certain amount of fat upon it if it is to produce the best class of bacon. Therefore, finish is an important thing, and the animal that is too lean, or has been held back to keep the weight down, will almost turn out soft.

I believe I have mentioned some of the principal causes of softness. The question arises, is there any practical remedy for this; is there any way by which we can feed hogs economically and yet overcome the softness? I believe there is. I mentioned that where hogs had exercise, it mattered very little whether they were fed exclusively on meal or not, but where they have no exercise, the question is how can we feed them and yet produce firm bacon. An important point in accomplishing this end is to give the hog a variety of foods; if you give him a variety, and feed a moderate amount of bulky food, such as roots in winter or green food in summer, along with a proper meal ration, you will probably never have softness. In summer time, the hogs that get green food along with the meal will seldom produce soft bacon, provided the meal is suitable. But I believe there is one point to be guarded against in this connection; that if you attempt to fatten a hog almost entirely upon roots, the chances are you will only partially succeed, and your hogs will go to market in a somewhat unfinished condition, and if so, you will have soft bacon. Therefore, I think it is possible to feed too many roots or too much green food; but at the same time these things used in their place are exactly what is required to produce good quality of bacon. Skim milk is one of the very best foods to combine with the meal ration to produce firm bacon. Many feeders cannot get skim milk, but if they have roots they can produce a good quality of bacon without skim milk. We have fed as high as two pounds of roots to one pound of meal, and had hogs firm, but I think it is a little extreme. The best results we have had were from about equal weights of roots and meal.

In regard to green food, we feed green food in different ways. Where the hogs are fed meal twice a day, we generally throw in as much green food at noon as they will eat up clean. Such hogs will turn out firm, in spite of lack of exercise or skim milk.

We have done a little feeding on pasture, but something has always occurred to make our experience unsatisfactory in that connection. We have never got as economical gain from feeding hogs upon pasture as we have from feeding hogs inside, cutting the green food and carrying it to them. A great many persons advocate feeding hogs on pasture, claiming that it is cheaper than feeding inside. I believe that hogs may be fed very cheaply on pasture at certain stages of their growth, especially on alfalfa. But it is rather suggestive that in connection with the feeding of cattle the very opposite has been demonstrated, and we find people all over the country advocating the feeding of cattle in the stable exclusively. The only objection to inside feeding is the question of labor. It is a little strange that we should advocate inside feeding in the case of cattle, whereas in the case of hogs (which have been fed inside hitherto) it is now claimed that they should be fed outside. I have my doubts about the matter, and so far we have had much cheaper gain from feeding inside.

In regard to some of the foods for swine, I presume everybody knows that peas are one of the very best foods for producing firm bacon. There is very little difficulty about soft bacon where peas constitute any considerable part of the ration; but unfortunately peas are practically off the list at the present time. Next to peas with regard to producing firm bacon, I believe that barley is a close second. We have had excellent results from barley, and we know that barley is one of the principal hog foods in Denmark. Where it is fed with roots, boiled potatoes, or skim milk, it is an excellent food for bacon production; but I do not think much of it for breeding sows. We seldom start to feed barley until the pigs are three months old, when a little is introduced into this ration, and is gradually increased. We have finished hogs on barley and nothing else, and they did about as well as they would do on any other one kind of food alone. If I had to feed a single grain I would rather take barley, but a mixture is always preferable. Rye is a grain that has a higher food value than barley, and is very satisfactory where fed in mixtures. It comes about midway between barley and wheat in feeding value, running very close to wheat. Wheat, so far as we have tested it in mixtures, has given good results; it will produce good quality of bacon if fed as already indicated. With regard to corn, it is a dangerous food, and, more than that, an exclusive ration of corn is one of the least economical foods. If you feed it to growing pigs, you are certain to have unsatisfactory growth. I used to think that there must be something wrong with our method of feeding corn until I began to investigate the experience in the United States, where corn is so largely used, and found that it corresponded with our own. I saw at Chicago an exhibit of hogs fed on corn alone, and another fed on corn and tankage. The difference was so marked that you would not believe that those pigs were both from the same litter; those that had been fed tankage were much larger, more growthy, and far superior in every way. For feeding bacon hogs that are growing right up to the time of marketing, corn is unsatisfactory and unprofitable if fed alone, and on account of its tendency to injure the quality of the bacon, it should be fed in small proportion and along with roots, skim milk, or whey. Oats are rather too chaffy for economical results, but a few oats may be mixed in the ration with very good results, especially if you are feeding corn-meal, wheat, or pea-meal, which require lightening up a little. Where the meal is of a heavy nature and you find it to be somewhat difficult to digest on that account, a few oats tend to lighten it up, and lessen the danger of digestive troubles. Bran belongs to the same class and may be used to advantage in the same way. Bran and oats make a capital ration for breeding sows; if some middlings are added, they become all the better. Middlings have less fibre than bran, and consequently are more valuable as a hog food. If fed in mixtures, they tend to produce bacon of good quality.

As to green food, almost any kind of green food will answer. Rape, clover, vetches, or alfalfa, or even ordinary grass will serve. I believe that among the most valuable foods for pigs, is green alfalfa or lucerne, vetches, and rape. Of the three, I am the most partial to rape, for the reason that it will keep green for a great length of time; that is to say, it

does not ripen off. By sowing it at different stages you can have rape from July until it freezes. It has a very considerable feeding value for hogs. Vetches do not last quite long enough. As a pasture crop, the hairy vetch is very valuable, because it will grow up quickly. I am a firm believer in pasturing breeding stock, and the hairy vetch is especially useful for this purpose. I believe that a pasture should always be provided for breeding stock. Sugar beets are the most desirable of roots for feeding hogs, unless it be artichokes. Sugar beets have a little more fattening value than mangls; but mangls will do very well. Turnips, perhaps, have the least value of the three, mainly because the hogs will not eat them so readily. To make turnips more palatable, cooking is an advantage. I do not think it increases the digestibility at all, but it makes them more palatable, and you will get the hogs to take more of them on that account. In regard to potatoes, I believe their feeding value is improved by cooking and certainly their palatability is improved. The hog likes his potatoes cooked comparatively dry and mealy. If you mix meal with them, you have an excellent food for hogs, and one that will produce good quality of bacon.

There are two foods I should like to mention which we tested this year for the first time. Both are by-products from the slaughter house. They are blood meal, and what is known as tankage. In this country these by-products are sold as fertilizers, but in some of the American slaughter houses they are put through a refining process and made into stock food. In our experiment this year we had excellent results from them. The report we received on hogs fed in this way was to the effect that the bacon was all No. 1 as regards firmness. These hogs were all fed in close confinement, and yet there was not a soft side in the lot of forty pigs. In addition to feeding these two foods with the meal ration, we generally fed a handful of green feed every day. I think it is a mistake that some of our Canadian packers are not making an effort to manufacture some of these by-products into stock food. We obtained a shipment of blood meal from one of our factories, but found that it was mixed with all sorts of rubbish, and the hogs would not eat it at all. The foreign matter must be taken out; the same applies to tankage. We fed about one pound of tankage and blood meal to six pounds of meal. The blood meal costs forty-five dollars a ton, and the tankage thirty dollars, at the factory. We valued the meal all through at twenty dollars a ton. It consisted of middlings and barley. The skim milk which we fed to some groups, we valued at ten cents a hundred, which is a comparatively low valuation. In one group receiving blood-meal at this valuation, the cost of one hundred pounds of gain was four dollars and sixteen cents. In another group, where tankage was used, the cost was four dollars and twenty-four cents, which is a very low cost, considering the valuation put upon the meal. Another group on tankage cost four dollars and five cents per hundred, but these were a better class of pigs, being younger and more growthy. The best group on skim milk cost four dollars and seventy-eight cents per hundred. Another group not quite so growthy, cost five dollars and forty cents per hundred. Another group on meal, skim milk and tankage, cost four dollars and thirty-two cents, or a little more than those fed with blood meal and tankage, but not so much as those on skim milk alone. We had another group in which there were two little chubby, fat pigs, and this group cost four dollars and seventy cents per 100 lbs. gain, with skim milk and blood meal along with the meal ration.

I wish to draw the line very clearly between foods of this kind and patent mixtures which contains no one knows what. I never buy a food unless I know what is in it. The composition of tankage and blood meal is, however, guaranteed. There is 60 per cent. of protein in tankage and 87 per cent. in blood meal. In the United States, they get good results from foods of this kind, and they seem to be what a pig requires to give variety. I am not sure but that a mixture of skim milk, roots and meal might answer just as well; but since these foods are being put upon the market here, I thought it well to bring them to your attention ?

Q.: What about apples for hogs?

Prof. Day : I never experimented with them, but we have sometimes used refuse apples, and I cannot say that we got very encouraging results.

Q.: What breed made the cheapest gain in your experiments?

A.: We had no breed experiment in this case; they were all kinds, and the question of breed was not taken into consideration.

Q.: If you were feeding a pig for yourself, would you care to feed blood meal and tankage?

A.: I would not object to it in moderation.

Q.: Have you had any experience in feeding black barley?

A.: It is somewhat similar to rye.

Q.: How often do you feed hogs?

A.: We feed small pigs three times a day at least; but when they get to about 150 lbs. we generally feed meal twice a day, and green food or roots at noon.

Q.: Does ground grain or whole grain give the better result?

A.: We have not experimented with that, but it has been experimented with a good deal in the United States. The results have varied very much. In some cases they found that the grinding paid for itself; in other cases it did not; but the weight of evidence is in favor of grinding. If grain is fed whole, it should be soaked.

With regard to corn-meal, and the production of the best quality of bacon, I would say, do not feed a pig any corn till he reaches 100 lbs. live weight. If you feed much corn before that, I think you will not produce first-class bacon. We have finished hogs of 100 lbs. weight that had lots of exercise previously, on corn and skim milk alone, and produced firm bacon. If I fed corn, I would mix it largely with barley, using not more than one-third corn, and even then I would feed roots along with it. If I wanted to be perfectly sure, I would add skim milk to the ration.

Q.: Would you feed meal dry?

A.: I believe on the whole, that if a person has the proper appliances, he will get value from soaking the food; but in winter time, especially with breeding sows that run out a good deal in the cold, I would feed dry meal. In this case you are not trying to get economical gains, but are striving to keep the animals healthy. For fattening pigs in a warm pen, I would prefer soaking the food, but not souring it.

Q.: Do you feed warm?

A.: I do not think there is any advantage in this, except for little pigs, when it is desirable to take the chill off. I suppose it would be better warm than very cold. I would not give them food that is nearly freezing.

Q.: If you had to wean pigs in winter and had no milk, what would you feed them for the first three months?

A.: It is hard to get along without milk, but I would not wean the pigs till they were eight or nine weeks old, if I could possibly help it, and would try to get them to eat well before they were weaned. After that, if possible, I would get some blood meal, because I believe that is the place for this food; it is rich in protein, and you can make with it a mixture very similar to skim milk. With it I would feed middlings. If you feed middlings, freshly mixed, to young pigs, there is a danger of causing indigestion, so that for my own part I prefer to soak it, or put it in a pail and pour boiling water on it and let it steep from one feeding to another. Feed the young pigs four or five times a day, and a little at a time. As they get bigger, there is less danger, and by the time they are three months old, if they are doing well, you may discontinue scalding the middlings, but I believe that as long as you are feeding middlings it is better to soak them to take away their cloggy nature, and thus prevent indigestion.

Q.: Have you had any experience with oil-cake?

A.: It is a very good thing in a mixture. Another thing I like to feed with middlings is finely ground oats with the coarse hulls sifted out. It makes a capital food.

Q.: Do you know anything about a machine for sprouting grain?

A.: Grain, after it is sprouted, is very palatable, because the starch in it has been turned into sugar. No doubt the sprouting increases its digestibility, but it cannot double the feeding value, as is sometimes claimed, and I think that the promoters of the sprouting machines do themselves an injury by claiming too much. We have had no experience with the machine.

Q.: What about silage?

A.: I would rather use roots, but a little would be all right. Cut clover hay steeped in water is a good thing for breeding sows.

Q.: Do you feed any charcoal?

A.: Sometimes; I think that perhaps we should feed more; we like to have a little on hand.

Q.: Do you give much salt?

A.: Not a great deal. We have sometimes kept a mixture of salt, sulphur and ashes in the pens, and I believe it is a good thing.

Q.: What is tankage?

A.: A by-product of the packing-house; it contains a good deal of connective tissue, and certain parts of the intestines.

Q.: How is bone-meal?

A.: A little would be all right; it would, to a certain extent, take the place of charcoal.

Q.: Does the cost of producing a pound of pork increase as the hog grows older?

A.: Yes, there is a very material increase. When a pig reaches 200 lbs., he will probably require five pounds of meal to a pound of gain.

Q.: At what age do you sell your pigs?

A.: It depends on how we have treated them. We have had hogs go to market weighing over 200 lbs. at six months. As a rule, our pigs are from seven to eight months, depending on the breeding and the kind of start they get. We have had some families that you could not keep back. A naturally growthy pig matures early, and is just as likely to make firm bacon as one that takes a longer period.

Henry Glendinning, Manilla: Prof. Day has gone very thoroughly over the ground in regard to feeding hogs for bacon. I should like to impress some of the points made. He has dealt largely with the hog after it is well grown. I think if we are to produce the right kind of bacon, we must have the right kind of hog to begin with—a good, strong, healthy pig. In travelling over the country in the winter time, we often see young pigs in an unthrifty condition, with the hair turning the wrong way, and with a scurfy appearance around the eyes and on the back and shoulders, which seldom occurs in the summer time when the pigs are allowed out to pasture. This condition comes largely from wrong feeding. Many kinds of feeds have a tendency to produce it, and one of the best hog feeds we have, namely, skim milk, is the most likely to produce that result. In sections where creameries are common, we find that condition to exist to a greater extent than in other parts, because skim milk is very nitrogenous and constipating, and consequently the digestive organs get out of order.

Young pigs very frequently take fits, which sometimes result in death. Even if such a pigs get better, it will take it months to get into normal condition. As a rule, when you get him up to one hundred or one hundred and twenty-five pounds, and try to convert him into bacon quickly, you will find that he is continually hanging behind. I believe that the best bred and finest pigs may be spoiled by improper feeding when they are young. It is one of the most important things to commence right and keep the pigs going along in a thrifty way. While I say this about skim milk, I believe that where fed judiciously, it is one of the best feeds for pigs, but they should not have too much of it, and should have plenty of exercise and plenty of green feed, wood ashes and charcoal at the same time. But do not feed peas and skim milk together, because they will only aggravate the trouble. Barley, oats, middlings or corn will give better results in conjunction with milk.

Q.: How many pounds of skim milk would you give?

A.: Not more than two pounds per day.

Q.: Do you think that butter-milk would cause the same trouble?

A.: Just about the same.

Q.: Are bran and oil-meal suitable to mix with skim milk?

Mr Glendinning: I have fed bran and skim milk together with good results. I have never fed oil-meal with skim-milk; I should be afraid to do so from the fact that oil-meal is simply flax-seed with the oil removed. If you were feeding new milk you would have no

trouble, but if you remove the cream from the milk you have a very nitrogenous food, and you have the same thing in oil-meal; both are too high in protein.

Q.: How would flax-seed answer?

A.: It is one of the best feeds I know of for pigs if they go wrong. We grind it and feed it continually in winter time with skim-milk.

Q.: What food should be fed to pigs after they are taken from the mother?

A.: A little skim-milk, pulped roots, bran and middlings, and we like to feed some ground oats, but they should be ground very fine. They should also have plenty of exercise.

Q.: Have you had any trouble in feeding ground oats on account of the hulls?

A.: No, we have some mills in our section that grind oats very fine, the hull being completely ground up. In that condition they are a splendid feed for young pigs.

Q.: Don't you think that the acid in the butter-milk makes it different from skim-milk?

A.: I spoke of the lack of fat in skim-milk; I have noticed very little difference in feeding skim milk and butter-milk.

Q.: I have fed butter-milk and peas together and the trouble I had was diarrhoea.

A.: Perhaps if you had watched the case carefully, you would have noticed that constipation developed first; then nature tried to restore itself, and the result was a case of scours.

Q.: How much flax-seed would you feed to young pigs?

A.: Take about a handful of ground flax-seed and mix with a pailful of milk.

Q.: How do you give pigs salts?

Mr. Brethour: I have had a good deal of experience, and find that the easiest way is to starve the pigs a little first, which benefits the digestive organs, and then give the pigs the salts with some dry meal in the troughs, and you will have no difficulty.

Q.: What is the ratio of value between skim-milk and grain?

Mr. Fraser: Prof. Harcourt says that six pounds of skim-milk are equal to one pound of grain.

Q.: What experience have you had in feeding skim-milk warm?

Mr. Glendinning: A good portion of the milk is taken direct from the separators; that which is held over will get cold; but we do not like to have milk sour, and it is all fed the same day.

Q.: What about black teeth?

A.: I do not pay any attention to their color, but we make a point of removing deformed teeth from the young pigs during the first hour or so after their birth, for the reason that if they stick out, they prick the sow's udder and start up irritation, and on that account she will sometimes turn over on the young pigs and kill them.

Mr. Brethour: Black teeth are caused by the condition of the animal. They are the natural teeth discolored by indigestion, and the proper way to overcome the trouble is to change the system of feeding. Pulling the teeth out will not correct this.

Q.: Do you draw the sharp teeth from your pigs or break them off?

A.: Either way; I usually break them off.

Q.: Do you prefer feeding meal with water or do you give the water separately?

Mr. Glendinning: In summer time we always soak our meal. We grind all our grain, and then soak it for about twelve hours, but we do not like to have it in a sour condition, as it causes indigestion; but in winter time, when there is no danger of frost in the pen, we usually put our pulped roots in the bottom of the trough and spread the dry meal over the top. We think we get satisfactory results from this method.

Q.: Do you think that sweet milk is better than sour milk?

A.: I think sweet milk is better; it depends on the amount of sourness; there is not much feeding value in very sour milk.

REQUIREMENTS OF A HOG PEN WITH REFERENCE TO MOVABLE PENS.

By J. E. Brethour, Burford.

There are a number of points that have to be taken into consideration in the construction of a suitable pen for hog feeding. In the first place, it is necessary to consider convenience,—convenience in feeding and also in cleaning the pens. Another point is ventilation. That is a serious matter, and I do not pretend to say that I know how to overcome all the difficulties, but I do know what the difficulties are, and I am trying to overcome them, and possibly shall succeed in time. The requirements of good ventilation are, first, that there shall be no draft, and, second, that there shall be no dampness. I would sooner have a cold pen than one dripping with the condensed breath of the animals. You will never have pigs healthy and thrifty under such a condition. Drafts are very injurious and their prevention must be kept in view. Thorough ventilation is a great help in preserving dryness, but the difficulty is to secure ventilation without lowering the temperature of the pen unduly.

The pen shown in the chart can be reduced or enlarged as circumstances require. The building shown is 100 feet long and 36 feet deep, with a passage through the centre 5 or 6 feet wide. A cement wall eight inches thick rises three feet above the floor. On top of this wall the frame is built. The walls are built of 2 x 4 inch studding, boarded on the outside with cheap lumber, covered with building paper, and tightly clap-boarded on top of the paper. On the inside the walls are lined with match lumber, so as to give a dead air space inside. The lining also extends over the lower side of the rafters, giving a dead air space to the roof as well as the walls.

From the cross section it will be seen that the total height of the wall on the north side is 11 feet, and of that on the south side 8 feet. The roof has the same pitch on both sides, so that there is a drop of three feet from one section of the roof to the other, at the centre of the building. In this space windows are inserted to throw light and a certain amount of sunshine into the row of pens along the north side of the building. These windows are hinged at the top and can be opened at any angle according to the requirements of ventilation. A ratchet device, similar to that used for opening the ventilators in greenhouses, would be very convenient for this purpose.

The floor is cement throughout. Cement is so durable and easily cleaned that it is the most satisfactory floor. The pens are subdivided in such a way that there is a sleeping place and a feeding place. The sleeping place is eight inches higher than the feeding place, and there should be a little drain of 1½ inches to the gutter, and also from the trough to the gutter, which is at "C" (cross section). There is a tile drain at "C" from one end to the other of the building, and a pit is provided to collect the drainage. Thus all the drainage from the pens is towards C, the lowest point, and the bed, being higher is always dry.

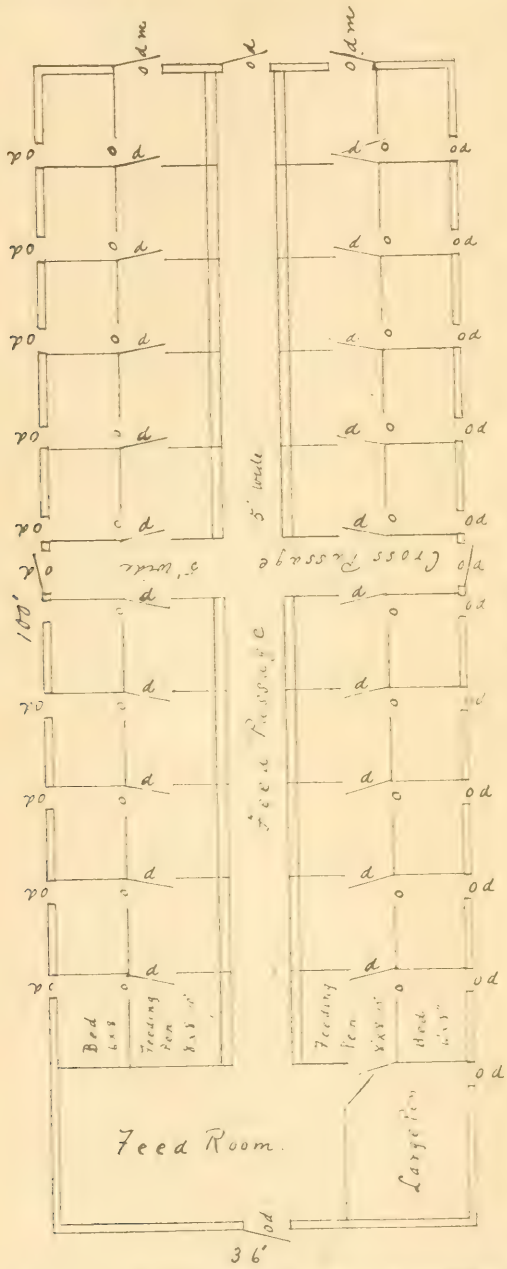
The partition between the bed and the feeding pen is 3½ feet high, and the opening from the bed to the feeding pen is 2½ feet wide. The partition shelters from draughts and keeps the straw in place, thus economizing bedding. The other partitions are four feet high.

The fronts of the pens near the alley-way are built like a wire fence of No. 9 coil steel wire, two inches apart at the bottom and grading to about three inches apart near the top. They are stiffened by heavy upright wire in front of each pen, fastened to the horizontal wires by means of washers used for that purpose. The wire partition is set in about 2½ inches from the trough, to allow room to pour feed into the troughs. There are no doors from the pens into the feed passage, as wire will not permit of them, and this is somewhat inconvenient. The wire partition, however, is more sanitary than wood and gives a much better view of the pigs.

Some will ask, Why don't you build a loft above for the straw? I think it is always much more difficult to get good ventilation where you have a loft. A loft necessitates a low roof, and you must have height to get good ventilation. It is generally possible to locate the building so as to make it easy of access to straw for bedding.

Q.: Do the pigs lie on the cement?

Mr Brethour: Yes, but we give them lots of straw. If I had not plenty of straw I would put planks on top of the cement, or portable wooden floors may be used. The troughs are also of cement and are 8 inches high next to the feed passage. 4 inches high next to the feeding pen. and 10 inches wide. The feed passage is five feet wide and four inches lower than the feeding pen, but this is merely in order to show off the pigs to better advantage.



PLAN OF PIGGERY.

Explanations: o, Openings 2½ feet wide between bed and feeding pen. d, Doors 4 feet wide in partitions, which swing back and close openings at o. o d, Doors leading outside. o d m, Doors for taking out manure, or taking in bedding. Pens are uniform size throughout. Dimensions of pens include partitions.

The purpose of the doors in the partition between the pens is easily understood. They can be swung back, closing the pigs in the back apartment and leaving a continuous passage for cleaning out the pen and for taking in and distributing bedding. These doors are also used in moving pigs from one pen to another.

The roof is supported by the four lines of posts, to which the partitions are fastened. Each row carries a line of plates which support the rafters.

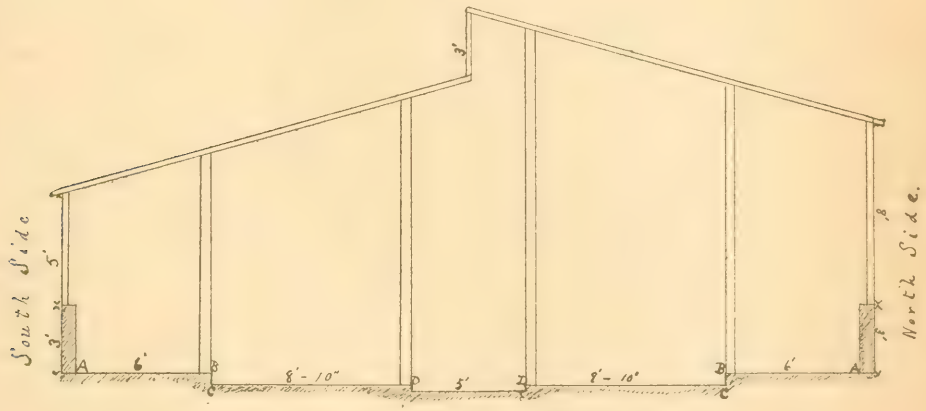
There are six windows in the south wall, 5 feet long by 2½ feet high. The north wall has only two windows. The roof windows are made to tilt out. This keeps the rain out, and allows the foul air to pass out, giving circulation without draught.

The doors are two inches higher than the cement floor, so that they will not freeze in winter time, and the space serves to promote ventilation. In very cold weather we throw down straw in front of the doors and so keep out the rush of cold air.

I think it is objectionable to keep brood sows along with feeding and growing pigs, as the young pigs will not do well.

Q.: Why is that?

Mr. Brethour: I do not think the sanitary conditions are as good, and the young pigs do not get sufficient fresh air. I refer to where large numbers of pigs are kept; where you have only a few there would be no difficulty. However, if it is desired, one of the sections on the south side could be modified to answer the purpose by making the sleeping apartments 2½ feet wider, thus giving beds 8 x 8½ feet.



Cross section of Piggery, showing contour of floor, shape of roof, and supports for same.

A. P. Ketchen, Dominion Department of Agriculture: The hog pen is the hardest building on the farm to ventilate, and there is a great tendency to damp, dripping ceilings and walls. Mr. Brethour has provided for ventilation in his roof by leaving out the straw loft. The only improvement I would suggest is an intake for fresh air. At present the foul air and good air pass in and out at the same points, and I would suggest a ten or twelve inch tile extending along the alley underneath the floor, with openings at various points to admit the fresh air. Another device that I can recommend is a gutter, similar to that in the cattle barn, not more than ten inches wide and four inches deep beween the bed section and the trough. A gutter of this kind is quite as valuable in a piggery as in a cattle barn, as an aid to keeping the pens dry and clean.

A point that is frequently overlooked is the handling of breeding sows in winter time. These are frequently kept in the same pen with feeding stock. We have never been able to make that a success. We have also found it necessary that the sows should get the run of the barn-yard; and if this is done, the pens should not be kept warm enough for feeding stock, or the sows will chill when they get outside.

A movable pen is an ideal method for handling breeding stock. Mr. Brethour has a pen 8 x 12 feet, 4½ feet at the back and 7½ feet in front, with a shanty roof, and the door in one corner so that there will be no draught. The door is always open and the sows are fed at some distance from the pen. The pen should be placed out in the field, and the troughs between the pen and the barn, so as to give the pigs exercise.

Q.: How do you load pigs in taking them to market?

A.: The alley-way of our pen is three feet above the ground; we back the wagon to the allay-way, remove the end board and drive the pigs into the wagon.

J. H. Grisdale, Agriculturist, Central Experimental Farm, Ottawa: I wish to corroborate what has been said as to the value of of wire partitions in pens. There is no improvement that has been recently made that is of more value and more worthy of adoption than wire fences, both between the different lots of pigs and along the aisles. The only objection to them is that breeding boars are likely to fight. This may be overcome to a certain extent by putting the wires close together.

We have been studying different methods of housing brood sows during the winter. We have found in our experience that one of the most difficult things to provide for is this: that if you keep them in a pen that is warm enough, there is liable to be insufficient ventilation, while if they are outside, they are too much exposed. We built a pen with a flat roof 10 feet high at one end and 12 feet at the other, with a slope of two feet in forty, with windows on the east, south and west. These windows extend from four feet above the ground to the roof, so that there is no loss of light, and the pen gets the morning, the noon and the afternoon light. Above the side windows are little ventilators which can be easily opened and allow the air to come in in such quantities as we wish. We do not mind pigs being cold; I rather like our breeding stock to be kept in fairly cool quarters; but we do object to any kind of a draught. In this pen, which is divided into two sections, 30 x 40 feet each, we let the brood sows run free. We haul in horse manure for the sows to root amongst, and throw a little straw in one corner for sleeping quarters. In another part of the pen, which is kept free from horse manure, we feed sufficient roots to keep the sows in good health. We have never had such good results from breeding stock as when kept in these quarters. The building is cheap to construct, and one that every farmer who keeps more than four or five pigs should build, suiting the size to his requirements.

As to the construction and use of movable pens, we have found that for summer feeding nothing else is quite as convenient as a small pen that can be moved from one field to another to provide comfortable sleeping quarters wherever the pigs may be pasturing. We have found the pen most suitable to our purpose to be 8 feet long and 6 feet wide at the bottom. Three 9-foot scantlings 4 x 4 or 3 x 4 inches are laid side by side, with six inches projecting at each end. Through the middle one holes should be bored and a ring passed through to which you can hitch. On the top of the scantlings nail boards firmly for the floor of the pen. The ends of the scantlings should be rounded off to form runners. The roof should be an inverted "V" shape, and commence from the floor, so that there are no side walls. Such a pen is not quite as commodious as one with sides, because pigs of any considerable size find it impossible to lie against the wall, and there is loss of space on that account, but, generally speaking, the pen with the roof only has been found most advantageous, as it is easily constructed, nearly as commodious and somewhat less expensive. They are built of inch board, with laths nailed over the cracks of the roof. The pen is transported by horses.

Q.: Do you allow the roof to overhang?

A.: Yes; but not enough to come to the ground.

Q.: Is there any ridge board?

A.: No; it is not necessary.

We find that good results are obtained by keeping young pigs outside in the winter in one of these movable pens with a little outside pen attached. This has been our practice for four or five years, and the results have been very satisfactory.

Q.: How do you account for it?

A.: Our regular pen, which was built some years ago is not very well lighted, and has not a proper system of ventilation, and there is no doubt that light, good air, and a certain amount of exercise are conducive to health.

THE DRAUGHT HORSE—HOW TO BREED AND MANAGE IT.

By W. S. Spark, Ottawa.

I have been asked to come out to this country to address you on the subject of horse-breeding. I have had considerable experience, and hope you will be able to benefit by it, but I do not wish you to think for one moment that I have come here to dictate to you. I am here to exchange views with you on the subject, and hope that we may each derive benefit from the other's experience. Discussion on any subject by those interested tends to enlarge our ideas and to improve our knowledge. If in the course of my address I express opinions with which you do not agree, let us discuss the question after I have finished, and if I have left out anything you wish to discuss, please let me know, and I shall be most pleased to give it my attention.

The first time in history that any mention is made of British horses is when Julius Caesar described their strength (54 B.C.). Henry VIII. was, I believe, the first king to establish a royal stud, which he did about 1520, enacting laws to promote the breed of strong horses in certain shires, hence the name of "Shires." From that time breeding of horses by the British has been carefully thought out and experimented upon, with the result that, owing to the great interest taken in the subject, the improvement in breeding has been gradual but sure until they have arrived at the present almost perfect state.

Great Britain is undoubtedly the headquarters for breeding all the best horses the world produces, except the American Standard-bred, for in Great Britain the breeding has been brought to greater perfection than in any other country. The Americans, French, the Austrians, the Germans have all improved their breed of horses by the importation of English stallions and mares, for which they have given very large prices.

In starting to breed heavy horses, you should, if possible, get a good, well-bred, roomy mare to begin with. I want to impress on you most strongly that it is absolutely wasting time and money to try to breed a good animal from a thoroughbred or even from a light general purpose mare by a heavy draught stallion. The experiment has been tried over and over again in the Old Country, always with the same result—failure to produce anything useful.

Above all, see that you have a sound mare so far as hereditary disease is concerned, and the same remark applies much more to the stallion. I may here say that the following are the different diseases which are generally considered by the best authorities to be hereditary, that is, a disease liable to be transmitted by the dam or sire to its offspring: Roaring, whistling, sidebone, ringbone, navicular disease, curb, bone spavin, grease, shivering, and cataract. (Here explanations followed, showing on the chart the seat of the various diseases.)

In buying a horse, I have known some very clever and shrewd men deceived about navicular diseases, from the fact that the animal has been unnerved, and the purchaser has never detected it. I hope you will never have to blame yourself for being deceived about a horse that has been unnerved, for I will tell you how to be certain of finding it out. As you may probably know, a horse that has been unnerved has no feeling in his coronets, so just take a pin and prick the coronet, and if the horse has been unnerved it will take no notice of it, but if he has not been done, look out and get out of the way when you prick it.

In selecting the mare for breeding purposes, you should get one well-ribbed and wide, with length, depth, ample heart room, and a good constitution. The foals often take after their dams in constitution and stamnia: therefore, it is highly necessary to select mares possessing these qualifications. The head and neck should be set on good sloping shoulders, the quarters big and muscular, and, above all, good legs and feet. The feet should be of good size, sound, open ones, not abnormally large, but hollow below, with strong heels, and thick, tough crusts. Big, flat, overgrown feet are often the first place where a heavy horse is likely to go wrong, if overtaken by any serious illness.

It depends greatly on the make and shape of your mare as to the stallion you should mate with her. You must always try to find a stallion which possesses in a marked degree the good qualities the mare is deficient in. In the selection of a stallion, the most particular attention must be paid to the size, quality, and formation of his limbs and locomotive organs; it is not a question only of weight and width of carcass. He should in the first place have similar feet to those I have stated his mare should have, and his knees should be big, also his hocks. The bone must be of good quality, and the tendons fully developed. A horse with weak and badly developed tendons, stuck up close against his cannon bones, always measures badly below the knees, and consequently is very liable to suffer from sprains and contraction of the back tendons. A stallion should always have strong, muscular arms and thighs, and powerful wide quarters. Action is highly important in a stallion, and is undoubtedly likely to be hereditary, especially in the walking pace, which is the most important pace of all. Never use a stallion which is not free from hereditary disease. In my opinion all stallions should have a certificate of soundness before they are allowed to serve.

In starting to breed, remember that a good animal costs no more to keep than a bad one; so get the very best mare you can afford to buy to commence with, and if you really want to succeed and make money out of breeding, you can do so if you keep your filly foals. Do not be tempted to sell them, because your brood mare will go down in value in the market every year after she is eight years old, and your young mares by pedigree sires will breed progeny still more valuable than themselves. By mating with pedigreed stallions, the breed may be raised step by step in this way, but if the filly foals are sold off, and the old brood mares are bred continuously, there must be a stagnation instead of progressive improvement.

During the time of pregnancy, the mare may be worked up to a few days of foaling, provided she is well fed and has plenty of pure water. This is most conducive to good health, and the dangers of parturition are greatly reduced. Some time previous to the date of foaling the food should be changed, and though still nutritive and concentrated, it should be macerated with water previous to being fed; but do not get it sloppy. A portion of bran or linseed meal should be added, as this acts as a slight aperient.

At certain periods both the mare and the foal may become the victims of a serious disease, which frequently causes great mortality. Septicaema, the disease in question, is well known to the veterinary profession and to breeders. It is introduced into the blood through certain organisms which abound in putrefactive solutions. For instance, the foaling box may previously have been used for a calving cow or lambing ewes; the box, not having been cleaned out, becomes tainted through the decomposition of animal matter; the bacterium of putrefaction is readily communicated to the uterus of the mare, and so causes the trouble. The mare and foal should be kept in a box for the first three or four days after foaling, then taken into the open during the day and brought in at night for ten nights. After that they may be allowed to be out altogether unless the weather is very bad. At the age of a week or ten days a light leather head collar with a short strap attached should be put on the foal, and it should be led about occasionally, patted and made much of. This will give it confidence, and teach it discipline. When this plan is followed the foal will be much easier to break

The foal, too, should be taught to eat artificial food from the manger at an early age with its dam. The foal may be weaned at five or six months, but if possible it should not be kept alone. Let it be with some other stock, as it is naturally a social animal, and will pine for society of some kind. During the early year's of the young animal's life, and certainly during the first winter, the food should be carefully prepared. The fodder, whether hay or straw, or a mixture of the two, must be cut into fine chaff and the grain ground into meal, the two mixed well together and soaked with boiling water. The mixture should be covered up and allowed to remain in this state for twelve hours, after which it will be in a suitable condition to be used.

The food varies greatly with the nature of the work the animal has to perform, but it may be interesting to know that in England the following has been found sufficient

ration for ordinary farm horses: 12 pounds good sweet oats; 3 1-2 pounds white peas, crushed; 1 1-2 pounds linseed; 12 pounds short chaff, three of straw to one of hay. A cavalry charger is allowed 10 pounds oats and 12 pounds of hay per day; omnibus horses 17 pounds oats and maize mixed and 10 pounds hay; a hunter 12 to 14 pounds oats, about 1 pound split beans and 6 pounds hay. It saves much waste to give the hay cut up into chaff, as a horse pulls long hay down, and often tramples on a considerable quantity. Carrots are very good for horses. You should feed horses a long enough time before going to work to allow for the digestion to be well advanced. If possible a horse should be fed every three or four hours during the day; long fasts should be avoided. Never let a horse drink for two hours after feeding unless he always has water by him in the stable.

As far as possible, stables should be light and airy. Sunlight is beneficial to both men and animals, and a horse brought out of a dark stable is very apt to shy and become frightened. Then, where there is darkness there is often an excuse for dirt, and unless a stable is kept clean it cannot be kept healthful. If it entails a little extra work it will pay ten times over. One should be careful to have the stable free from bad smells and foul air, and to see that stale food is not left in the manger, as it will often put a horse off his feed.

Always be satisfied that a horse is sound before you buy him, and get a veterinary's certificate if possible.

The question is often asked: "Why does the stabled horse require constant grooming, whilst the same horse turned out in a field does well enough without it? It is not the fact of living under cover, but the active work and the high feeding of the stabled horse which necessitates grooming. It is the work and the food, not the shelter, which constitutes the difference between the domesticated animal and the horse in the state of nature.

By work, and especially by fast work, the secretions of the glands of the skin are enormously increased. Furthermore, the horse which is worked hard must be fed on highly nutritious food, and from this cause alone the secretions of the skin are largely increased Nature must be assisted by artificial means to remove these increased secretions, or the pores of the skin will become clogged, and the health will be deteriorated greatly.

Men who have been driving or working horses make a practice, if they get the chance, when bringing their horses home in a heated or fatigued state, to ride them through a pond or ford until the water reaches the bellies of the animals. They are then brought into the stables, and feed thrown in front of them. The horses are often left in that state without anything more being done. Instead of such treatment, the horses should not be allowed to wet their legs above the knees ,and after the harness has been taken off they should be carefully rubbed down and dried from the ears to the fetlocks, after which they may be fed. It frequently happens that farm horses are kept too long at work without being fed, and after a fast of this kind they are gorged. Hearty feeding after a long fast is very apt to bring on indigestion, colic, or inflammation of the bowels. Many people appear to imagine that it is unnecessary to groom farm horses regularly and thoroughly. This is a very great mistake. Grooming is conducive to the health of the horse as well as to its outward appearance. Attention to this fact will tend to prevent many diseases, such as cold, bronchitis, and affections of the lungs to which horses are very liable when they have been left standing undried after coming in heated and wet with perspiration or rain, or both, at the same time.

The greater the action of the skin the greater must be the attention paid to it. As long as the horse remains in a state of nature, taking only the exercise required for gathering his food, and feeding only on laxative diet, grooming is not needed, because the debris of the food and the excretions of the system are carried off mainly by the actions of the bowels and kidneys. The hunter and the race horse, on the other hand, whose whole systems are developed to the utmost, require much more grooming than is necessary for carriage and ordinary riding horses.

Grooming, or in other words cleanliness of the skin, is not, as many suppose, the mere matter of appearance or of a rough or smooth coat, but it is essential to the general health and condition of the domesticated animal. In grooming a horse, use the stiff brush. Take care that your horses' collars fit them, and use leather-lined collars. Look to your horses' teeth and feet.

Muscles, tendons, ligaments, and the respiratory organs may by patient, constant, and increasing use be gradually brought to perform safely an amount of work and to support a strain which, without such progressive training, they would wholly be unable to stand.

The power of doing work and of sustaining fatigue is, if we may use the expression, cumulative Provided that the horse be kept in good condition, it increases from day to day and from year to year, until from age the animal powers begin to fail.

Regularity of exercise is also an important element in the development of the highest powers of the horse. The horse in regular work will suffer less in his legs than another, for he becomes gradually and thoroughly accustomed to what is required of him. The whole living machine accommodates itself to the regular demands upon it, the body becomes active and well conditioned without superfluous fat, and the muscles and tendons gradually develop. Horses in regular work are also nearly exempt from the many accidents which arise from over-freshness.

Having dealt with the breeding, management, feeding and working of the animal, I will now give you some information as to the best markets in which to dispose of your animals. In Canada the best markets for heavy horses are, of course, in the large cities, such as Toronto, Montreal, Ottawa, and Winnipeg. In my opinion, the way to get the fairest and best prices for good horses both in this country and in Great Britain is to put them in an auction sale, unless you have private customers from whom you get more than the actual market value. In England there is most demand for the heavy draught horse in the large cities and towns, such as London, Liverpool, Edinburgh, Glasgow, Dundee, Manchester, Peterborough, Leeds, and Leicester. (This is a particularly good market, and will, I venture to think, be one of the largest markets of the world.)

Train your sons to ride.

Keep the stables clean, warm and airy. Occasionally disinfect them.

I would suggest that in evry district there be an annual parade of cart-horses, on the same principle as those given in the large centres in Great Britain. Prizes to be given to the best groomed horses and the best turnouts.

In the Old Country the average price at public auction for the last six months for draught horses has been from $300 to $600, and lately foals have been fetching from $150 to $200 on the average.

I do not think that sufficient encouragement has been given to the farmer, who breeds the horses, at the agricultural shows. The large prizes all go to the dealer and the rich man. That is not right. The farmer is the breeder, and he is the man to be supported. I hope that when the management of the shows issue their next prize lists, they will give more prizes to brood mares and to young stock owned and bred by farmers, as I think it will do a great deal to encourage the breeding of horses. This is a matter that has not had the attention paid to it that it deserves, but if the subject is thoroughly taken up, there is no doubt about it that this is as good a country as any in the world for the breeding of horses. I do not say that simply for the sake of saying it, but because I find from what I have seen that your land is good, your grain is cheap, and you have plenty of both.

Q.: When you speak of combining the Clyde and the Shire, do you mean a crossing of the breeds?

Mr Spark: Yes, that makes a more desirable animal as a draught horse than either the Clyde or the Shire. The Shire, in my opinion, is the more massive, has bigger bone, and is more powerful than the Clyde. The Clyde is full of quality, and has a better quality of bone, possibly; I mean the bone is more like ivory than bone. The Clyde undoubtedly has the better pasterns. You therefore get the weight and strength of the Shire and the beautiful action and beautiful bone of the Clyde.

Q.: Is the British farmer combining the two breeds ?

Mr. Spark : If you know any good horse of either breed and look him up in the stud-book for the past fifty years, you will find that he is a combination of the two. That is a secret of the stud book, but it is none the less true.

Q.: Is that being encouraged by many breeders in Great Britain ?

Mr. Spark : I would not like to say that it is at the present time. I am sorry to say that there is great rivalry between the two, which is a very good thing for competition and they are each trying now to breed on their own lines.

I have noticed that a great many unsound horses are receiving prizes at some shows in this country. You have a system of judging at this fair which pleases me very much—your judges, when they have concluded judging, give their reasons for the awards. This is a system which, if adopted in judging horses, would do away with the evil I complain of. I do not wish to mention the names of shows, but at very large shows here I have noticed horses taking prizes which are absolutely unsound. The object of such a show should be to improve the breed of horses. If you give an unsound horse a prize, you encourage people to breed from an animal that is suffering from hereditary disease. In such cases, if the judge had to go through such an ordeal of questioning as your judges go through here, he would not know what to say if he had to give his reasons. It is a great do their duty.

Q.: When an animal has navicular disease, does it show any peculiarity in its manner of standing when in the stable ?

Mr. Spark : Yes—he will point first one leg and then the other ; directly you begin to move him, he will move very tenderly.

Q.: Does it soon destroy an animal's usefulness ?

A.: Yes, it does. Where a horse has been unnerved I have known the hoofs to rot right away.

Q.: What is stringhalt ?

A.: It is a contraction of the nerves and muscles, and increases with age. I do not consider it a lameness. One of the best hunters I ever rode had it. It is very ugly, but I have known many horses never to go lame with it.

Q.: What is laminitis ?

A.: It is a fever of the feet, brought about by concussion, or drinking when too hot. You do not often get it in heavy horses, but generally with horses working on hard stone roads. A bruise on the frog might produce it.

Q.: How do you test the soundness of a horse's wind ?

A.: By galloping him, stopping him short, and listening to his breathing.

Q.: Do you punch him ?

A.: I disagree with that altogether. I have known horses that were perfectly sound grunt at the sight of a man holding up his fist.

Q.: This is done almost entirely in our section of the country by men who are shipping to England..

A.: Dealers do that, but it is not the right way ; it is not a fair test.

Q.: Is there a nerve that can be cut which will cure stringhalt ?

A.: I believe it has been done.

Mr Reed : It has been done, and occasionally it has been successful. There is a muscle which can be cut, which in some cases will cure stringhalt.

Mr. Spark : Is it a certain cure ?

Mr. Reed : No, it is not.

Q.: At what time should a colt be broken for farm work ?

Mr. Spark : At two years, and given steady but not hard work. He will earn his feed at that age. This is the reason for my opinion that the draught horse is the better horse for the farmer to breed—because he earns his feed quicker. The demand for heavy horses in Great Britain is greater than ever before. In no case this autumn has a foal fetched less than $100 at public auction, and they have gone as high as $650. If a man can

breed heavy horses and send them over at four years old, he may be certain of averaging $250 for them, provided they are reasonably sound.

Q.: What weight ?

A.: We do not judge by weight in the Old Country.

Q.: Do you think it possible to give horses travelling on the road a certificate of soundness ?

A.: The Minister of Agriculture for the Dominion is considering that question at the present time, and I have put before him a scheme of voluntary registration. The system is this : If a man has a stallion he wishes to travel, he can go to the nearest veterinary surgeon, ask him to examine that horse, and get a certificate for it. If he gets this certificate, he can send it to the Department of Agriculture with a fee of $5, and the Department will give him a certificate saying that his animal is sound and fit to be used as a stallion. When a farmer knows that this is the case, he will naturally say to the man travelling a stallion, "Have you a Government certificate ?" I think you will agree with me that something must be done to stamp out hereditary diseases, and that it must be a voluntary measure. An unsound stallion is no good to anybody, and ought to be discarded, for the reason that he is doing great harm to the sound mares he is bred to. If this plan can be worked in a voluntary way, as I think it can, it would tend to reduce the price of a good stallion, because the owner would be willing to charge a somewhat smaller service fee if he were getting more mares.

Q.: What is your opinion about clipping ?

A.: In hunters it is necessary ; but I do not believe in clipping heavy horses.

Q.: Should you wash a heavy horse after a day's work ?

A.: It is not necessary ; let the mud get dry and brush it off. I would always wash the legs and feet, but not the body. You can clean that with a rubber just as well.

Q.: What about feeding and watering ?

A.: The horse has a smaller stomach than any other animal in proportion to its size. Long fasts are not a good thing for him, and he should be fed every five hours. In regard to watering, in my own stables I always see that a horse has fresh water by him. He will not then drink as much as he will take if he has to go for some time without water.

PEDIGREE : WHAT IS IT ? THE BENEFITS OF IT.

By M. Cumming, Lecturer in Agriculture, O.A. C., Guelph.

Pedigree is simply a statement of the ancestors of any individual—man or beast. Every individual has one. The only difference between so-called pedigreed stock and unpedigreed stock is that the pedigree or list of ancestors of the former has been preserved in writing, whereas that of the latter has not been so preserved. Hence, the term pedigree means, technically, a written statement of the ancestors of an animal generally preserved in some recognized record known as the herd book, or flock book, or stud book. Its value consists in that it serves as an indication of the inherited qualities of that animal.

The history of the improvement of live stock shows clearly that pedigree lies at the very foundation of such improvement. Those men who have achieved success as breeders of live stock have invariably paid the closest attention to it, and where its importance has been overlooked very haphazard results have been attained. True, many of these men, during the earlier periods of live stock improvement, could not have shown written records of the ancestors of their animals, but it would take very little conversation to find out that they kept these records very carefully in their herds.

And why this importance of pedigree ? Simply because every animal represents, in its make-up, not only its own apparent characteristics, but also, in a large measure, the characteristics of its ancestors, and it not infrequently happens that, when such animals are used as breeders, they pass on to their offspring more of the characteristics of their ancestors than of themselves. This, in a large measure, explains why disappointing results

are often attained by the use of some sire of most excellent individuality, but whose ancestors have been of rather inferior merit. On the other hand, it explains why many sires of only mediocre excellence often produce progeny much better than themselves—they have passed on the qualities of their ancestors. This, perhaps, is about all one can say in answer to the question, which is the more important, individuality or pedigree? The ideal is, of course, individual excellence and pedigree combined. The only satisfactory way of settling the relative merits of the two is to see the progeny and then judge. But where this is impossible, I feel safe in stating that one can afford to sacrifice a little individual excellence for a good pedigree, especially if the points sacrificed are not good constitution and a large digestive capacity. No pedigree can atone for unthriftiness or lack of constitutional vigor in a sire.

To illustrate the importance of pedigree, let us assume that two men, Mr. A and Mr. B, start out to breed cattle, each with a foundation of equally good cows. If these men are taken to represent a fair average of our stock men, probably A. will recognize the importance of having his cattle well bred, while B. is a little closer, as regards his pocket, and takes an inferior bull. He continues that practise, considering that, after all, pedigree is a mere matter of fancy ; but A. continues to select well-bred bulls. What is the result ? By some chance B. may now and then breed one or two first-class animals. Possibly he may have the good fortune during the first year or two to produce animals that excel A's ; but after ten, twenty or thirty years, B. will have no assurance that the progeny of his herd will have certain fixed characteristics ; but A., who has given close attention to pedigree, is almost certain that when he mates this and that animal together, he will get a good animal. In his herd we come to recognize, what we like to see in all good herds, a uniformly good lot of young stock. This is the ideal every one should aim at. Incidentally, I may say that Mr. Amos Cruickshank made the statement that no man can hope to achieve success in breeding in less than thirty years.

It is extremely unfortunate that the idea of pedigree is associated in so many minds merely with fancy or fashionable qualities, and not with solid worth, as described above. There are good reasons why this idea should have arisen, for there have been, and are, men who have dealt and are dealing merely in pedigree to the neglect of individual excellence. Certain pedigrees, or lines of pedigrees, have become popular through the great excellence of some of the ancestors in these pedigrees, and too often the progeny of these ancestors have lived on the merits of their ancestors when they have no right to. If, for example, a certain cow has become well known, through her prize-winnings, her calves are likely to be valued correspondingly highly, and it frequently happens that the calves of the next generation and of the next and next are valued highly for the very same reason. If the bulls used have been very indifferent, it readily follows that the calves will be of correspondingly less value, and have no right to be estimated highly, even if their great great grand dam was the most famous cow of her time. Fashionable pedigrees, so called, have generally arisen in some such way as above described. Unfortunately, however, speculators and inflaters of prices try to maintain the fashionableness of such pedigrees, and by doing so have greatly injured the pedigree live stock business. A fashionable pedigree may or may not be a good one, depending upon the above considerations. A good pedigree, on the other hand, is one in which all the ancestors are good. Such a pedigree is likely to become fashionable, which, in itself, is no objection so long as the breeders who have animals of this breeding continue to use carefully selected sires. It is well worth remembering that the majority of those pedigrees which to-day have become fashionable have become so through the merit of the animals mentioned in those pedigrees. From this it can readily be seen that any line of pedigrees can become fashionable if the cattle with these pedigrees prove their merit in competitions with other cattle, and that in the end the most fashionable pedigree of to-day will soon lose caste if the animals deteriorate in individual excellence.

With regard to forms of pedigrees in use, there is much that is apt to be misleading. In our ordinary sale catalogues the form used is the abbreviated pedigree form, in which the breeding is given wholly upon the dam's side. In this form of pedigree there

are mentioned up to the fourth generation eight out of thirty of the ancestors. It is clearly evident that the novice particularly, and even many an old breeder, can be very much misled by such pedigrees. There is, however, a strong tendency on the part of our best breeders to use the extended form of pedigree, in which all the ancestors are mentioned. True, this method requires more space, but in the end it will prove more satisfactory to all concerned.

To anyone who is interested in the improvement of his live stock, we would say, make a thorough study of the pedigrees of the stock you are interested in. This you can do by conversation with our best breeders and herdsmen, by attending the exhibitions and fairs, and by carefully reading live stock papers, books and live stock records, in which descriptions of stock and pedigrees are preserved.

PEDIGREE.

By Hon. John Dryden, Toronto.

I may find it difficult to make you understand what my idea of pedigree is. First, let me say that there are hundreds of our farmers who have a decided prejudice against pedigree, and if a pedigreed animal comes into the ring, they shy off and won't bid on it. I have stood around a ring where there were grade cattle and pedigreed cattle offered. When a grade animal came into the ring, they would run it up even beyond its value, but the moment a pedigreed animal was brought in, they would close right up. Does the pedigree hurt it? These men had forgotten that every single animal that came into the ring had a pedigree. You have a pedigree, but perhaps you do not know what it is. (Laughter.) You cannot get away from pedigree. Whenever you have a chance to buy a pedigreed animal that looks all right, it is certainly as good as a grade, and you run the chance of its being ten times as valuable to you.

If we admit the fact that every animal has a pedigree, whether it be recorded or not, then we want to find out what the value of that pedigree is. If I were examining into a pedigree that I was not familiar with, I should first of all want the herd books for reference. I do not know the first sire, so I look up his pedigree in the herd book to see of what particular breeding he is. If you young men here were to look up that pedigree, you would probably find that you knew just as much about it as you did before, because you might not know anything about the animals it contains. But those of us who have studied the history of the breed represented, perhaps for forty or more years, have all the information in our heads, and we can tell at once whether the individual animal in question is likely to be a good one for our purpose. If I find that the sire I am looking up is unsatisfactory in its breeding, I know at once that the pedigree is spoiled for me, and I need go no further. That proves at once the importance of using only well-formed and well-bred sires. If you use a wrong bull, it will always show in that pedigree. Ten or fifteen years afterwards a buyer will come to purchase an animal from you, but he sees that sire in the pedigree, and, knowing what he was, he says, "No, I do not want that breeding." Is he right or wrong? He is right, because you cannot put an inferior animal into a pedigree without injuring the pedigree to that extent.

If, however, I find that the first sire is all right, then I turn to the second sire to see whether he is all right. If he is not, I discard the pedigree. You have seen your father and your mother, and know what they were; perhaps you have seen your grandfather and grandmother, and know what they were. Then you know how to value your own pedigree. It is just the same with an animal's pedigree. You must know what were the characteristics of the animals comprising it. This becomes a question of memory largely; a question of information; a question of knowledge. When I look at a pedigree I perhaps see a sire named "William of Orange." Why do I say at once that that pedigree is all right so far as that sire is concerned? Because I know him to have been a valuable sire. I next come to another bull equally noted, and so I go on. When you have four

or five of these, and know every one of them to have been good sires, all of the same type and of the same style of blood, then you have got that much increased value to your animal, because that blood runs back all that distance.

I have often spoken here of prepotency in a sire. Why do I like to have a sire with three or four animals of similar breeding and uniform quality behind the sire I purchase? Because, if you have similar blood one generation after another it becomes concentrated, and, therefore, impressive and powerful to produce progeny similar in form and quality to the ideal chosen. It is the study of a lifetime to find out and remember exactly what is the real value of the animals entering into a pedigree.

As to which is the more important, individuality or pedigree, that depends upon circumstances Supposing I have an animal in which there is this concentrated blood. I would use that animal, even though he was not as good in some points as I should like, rather than another animal that was almost perfect, but whose pedigree was very inferior.

Suppose I were offered a bull that had a somewhat sloping rump, but was good around the heart, and had a nice head, etc., and I know what breeding is behind him, and what the animals were like in that pedigree; I know there is concentrated blood there, and that his progeny is likely to be like himself and like his sire and grand-sire. Shall I use him? Here is another animal that looks a great deal better, but his grandsire was one of the meanest sires I ever knew—bad skin, a hard feeder, etc. What would I do in that case? I would take the bull with the superior pedigree every time, even though he possessed a few minor faults. Mr. Duthie told me that the use of Scotch cattle in England was brought about in this way. Someone bought two or three rather inferior (as far as individuality was concerned) Cruickshank bulls and took them into England. But these inferior-looking bulls were wonderfully well bred with this concentrated blood. What was the effect of their use? They produced such animals that Englishmen began turning their attention to the north country for their sires, and from that time to this the tide has increased every year, until now the customers for Scotch bred cattle are coming in from the south almost altogether. I am willing to admit that using that kind of a bull as against another of equally good pedigree, and also a superior individual, the latter would be a great deal more valuable. If you use the former, you are lessening the value of the pedigree just that much. Pedigree will not necessarily always bring excellence; you get a slip once in a while, but the inferior animal should be thrown aside in such a case. Even though you have a good sire and a good dam, you will sometimes be disappointed in the result, and, therefore, you will have to keep up this careful selection all the time. It does not prove that because an animal has a pedigree it must be used. I do not think we do enough culling. The time is coming when instead of using every bull that has a pedigree, they will have to be culled out, and only the best used. Every breed would be carried forward far faster if we did more of that; but it requires courage, and you think, perhaps, that you are not making as much money. We sometimes think it will pay better to trade such a bull off on someone who does not know quite as much as we do. For my own part, I have never had any satisfaction in selling a bull that I knew to be inferior, or in taking advantage of a man's ignorance.

Q.: You have spoken of a black nose; does it injure the quality of the animal?

A.: It does not hurt the animal so far as general usefulness is concerned, but one does not like to perpetuate it. I would not use a black-nosed bull on that account.

SELECTION OF BREEDING SOW AND STOCK BOAR.

By J. H. Grisdale, Agriculturist Central Experimental Farm, Ottawa.

We have been hearing about the pedigrees of Shorthorns, but that is not the only class of animals whose pedigree is worth studying. Men who are interested in the breeding of pigs are quite as well aware of the importance of the study of pig pedigrees. If we desire to get pigs of the bacon type, we must breed from pigs that have been bred along that line for a considerable length of time. This is especially the case where the

sire is concerned. If we are looking for pigs of a certain conformation, we must breed from sires that have that conformation, and have themselves come from animals that had that conformation. If we want an impressive sire, it is necessary that that sire should have been bred along a certain line for a number of generations. To make any animal impress certain points, we must have those points bred into him for generations.

Q.: What is meant by line breeding?

Mr. Grisdale: It means breeding along a certain line, and keeping the animals to a certain type, which can be traced back to sires of a similar conformation and breeding, and as nearly of the same family as possible, without introducing too much of the same blood. It is dangerous to follow this too far, if we are to conserve the fertility of our animals, but if we want impressive sires, more or less of it is necessary. In every pedigreed animal there is more or less line breeding, but the more impressive ones are always bred along closer lines than the less impressive ones.

In discussing this subject, I would say that I wish to be considered as referring to pigs of the bacon type. It is not sufficient to breed merely for the ideal conformation. Many pigs of ideal conformation have characteristics which should debar them from use in our herds.

As to the Sires. The sire you use should come from a dam which has such points as you require in your brood sow. She should, of course, have the right conformation, and should be a prolific breeder. Whatever breed you go in for, it is necessary that you keep the characteristics of that breed clearly before you.

Good conformation of the sire is absolutely essential. He should be a compact animal, and full of energy, vitality and masculinity, as shown in the heart girth, compact shoulders, etc. The shoulders should be closely attached, and yet not pinched in so as to leave little lung room. Without plenty of heart girth, you cannot have good vitality, which is essential in an impressive sire. The body should be long, straight, and even, and of great depth, and the loins strong. Depth of body is essential to a good side of bacon, and so is length. The back should be slightly arched, and uniform in width to the back of the loin. As to the formation of the ham, the boar should show strong, full quarters, well filled outside and inside, and ending in a good, strong leg. See that he has good testicles, well developed and well placed.

The Sow. The sow should have a nice, clean countenance, a good wide forehead, bright eye, and sufficient length of jowl, but not too light, as that would indicate lack of vitality, and a tendency to produce animals, that are hard to feed. The hair is another important point. It should not be too thick or too coarse, but silky in character. The conformation of the sow should vary somewhat from that of the boar, as her functions are somewhat different. It is desirable that the sow should have more openness of conformation or construction; the shoulders should be a little wider apart, and the whole animal should have an appearance of looseness, but not of ungainliness; the two do not necessarily go together. We can have with this looseness, style, activity, and perfection of form. We do not want a sow that is excitable; she should be comparatively placid, but having at the same time considerable nervous energy, for without that quality she will not be a good milker, and that is a very important characteristic. The sow should come from a numerous litter of eight, ten or twelve pigs, in which there are no ruptured pigs, and should be one that has indications of having been well nourished by the dam. The number of teats does not indicate a prolific dam. Those with ten or twelve teats will sometimes give birth to 18 or 20 young pigs. The teats should extend well forward, and there should be no blind teats.

Q.: Has the sire any influence on the number of pigs in a litter?

A.: Yes, I think so; you will get more pigs from some sires than from others.

Q.: Is rupture in the young more likely to come from the sire than from the dam?

A.: I do not think so. But if you have a sire at the head of a herd that has inherited that characteristic, that fault may be found in many of his pigs.

Q.: Do you think very large litters desirable?

A.: I do not like more than twelve ; and, if they are uniform, I think ten is a good number.

Q.: Then why do you insist on so many teats ?

A.: I like twelve or fourteen teats, so that a sow can raise her pigs well.

Q.: Are you liable to get more pigs by allowing two services ?

A.: No, you are not.

Q.: Are you liable to get a larger litter when a sow has been running two or three days than by having her served immediately after she comes into heat ?

Mr. J. E. Brethour: I think they are more likely to get in pig if served near the close of the heat period.

BOARS AND SOWS FOR BREEDING.

By J. E. Brethour, Burford.

The conditions governing the selection of an animal for breeding purposes and for feeding purposes are somewhat different. If I am interested in the production of animals for breeding purposes, I would, of course, make a very careful study of pedigree on both sides. If, on the other hand, I was interested merely in the production of feeding pigs, I would leave such things as pedigree to the breeder, because time is too short for every feeder to go into the pedigree of his sires, for usually he uses a pure-bred sire and a grade sow in producing pigs for feeding.

In studying the pedigree of pure-bred pigs with the view to selecting breeding animals, I look for the strains that have produced animals with the characteristics I require. If I wish to use a sire upon a certain family, I first want to know the characteristics of the family of the sire. The characteristic of length is especially prominent in some families ; others are shorter ; others have the style of head you wish to produce ; others have not. In making my selection, I would not take two extreme types, but I would take families that are carefully bred up to an even standard. I would be very careful in seeing that the ancestors were of a type desirable for the production of the kind of carcass the market requires. If I were producing animals for the bacon market, I would have that in view, and I would use sires of that type.

In the first place, the character of an animal is impressed in the head or face development. For instance, if the cheek is rough and flabby, it is an indication of roughness, and unevenness of the body. If an animal has a narrow head, you will find that it is narrow on the back and rump. With an extremely long head, you will invariably find a long, bare shank and a rib that is deficient in flesh covering. Having seen the head, an expert will not require to see any other part of the body, but it takes a good deal of experience to enable one to judge an animal successfully from its head alone. One is also able to tell, in the same way, the class of feeder you would expect an animal to be. If it has a narrow head and a small, sunken eye, you will at once conclude that you have a shy, slow feeder and a sluggish pig. A prominent eye is an indication of good vitality. A narrow head is an indication of weak constitution and lack of vital force.

The jaw should be strong but smooth, and clothed with good, strong muscle. An animal with such a head is capable of masticating its food well. It also has plenty of room for breathing, and will have good lung power. If the jaws are fairly wide at the back, you will usually find that the heart girth is all right. A wide jaw indicates vitality. The eye indicates the temperament and vigor of the pig.

As to the bacon type. At the present time we have reached a point where we must take care not to go to extremes in length. There has been a great deal of talk about long pigs, and I think that some of us are inclined to to extremes in this direction. We want length with development between the extremities ; but if you have extreme length, you will also have weakness with it, and you will get a bare loin and back, which is an undesirable condition. We must be careful, therefore, to avoid that class of sire or dam.

There is one point in connection with breeding that I should like to mention. Many people tell me that while the first litter of pigs they have from their sows is usually very successful, in the next litter they have only two or three pigs, and these are not very thrifty. This is brought about largely by the condition of the sow at the time of mating. If she is very much reduced in flesh and in a weak condition at the time of mating with the boar, I believe that invariably the pigs will come weak and unthrifty, and often in small litters. A sow, therefore, should not be bred when she is in pooor condition. What I have said applies also to the boar.

Q.: How long would you keep a sow breeding?

A.: As long as she will give litters of good strong pigs. Do not breed from too young sows; we have that to contend with as breeders of pure-bred stock. People who buy from us want to buy as cheaply as possible, and want them light and young, so that the price and freight rate are not too high. It would pay much better to allow these sows to become properly matured before using them as brood sows.

For breeding purposes, the sow should not be forced too rapidly. If a sow is kept closely confined in the pen and fed heavily I do not think she will have the vigor and fertility that sufficient exercise would give.

Q.: Does the condition of the male or the female affect the progeny?

A.: If you have a sow or boar of the ideal type, and you feed that animal too heavily and produce in it the habit of laying on fat, and then breed that animal in that condition, the progeny will invariably have a tendency to become thick and fat.

Q.: In selecting a sow for breeding purposes, would you take one from the front teat or the rear?

A.: The strongest pigs go to the front. Usually there is more nourishment in the front teats.

Q.: My neighbor fed his sow on mangels, and while the sow kept fat, the young pigs were weakly?

A.: Too much roots would probably be the cause. It is a mistake to think that you can produce bone and muscle in young pigs by feeding roots alone to the dam.

Q.: What is your experience with alfalfa?

A.: I have had very little experience with alfalfa, but think it would be desirable either as green-food, or fed in winter as cut hay.

Q.: What is the best grain food for brood sows?

A.: If you really asked for the best grain, I should say ground oats.

Q.: Is not mixed grain better?

A.: It is better for feeding growing stock. I do not think that the best results can be got from one kind of grain.

Q.: If you had a sire and dam of extremely opposite types, would not the litter take after both?

A.: The form usually comes from the sire; but as to blending in crossing two extremes—a short and a long pig together—you will very likely get half the litter long and the other half short and stubby. You will not get a blend, but irregular, uneven stock; therefore, it is a mistake to breed extremes.

Q.: In selecting a sow, is it better to take one from a matured sow or from a young sow?

A.: I would certainly select it from the older sow's litter. If you take pigs from the first litters continuously, especially where the dams have not got their full development, you are apt to get deterioration of bone. A young sow should be fairly well matured before using her for breeding purposes; there will then be no disadvantage in keeping her pigs to breed from.

JUDGING BACON HOGS.

(Illustrated by Live Animals and Dressed Carcasses.)

By Prof. G. E. Day, O.A.C., Guelph.

I would suggest that before another Winter Fair is held a proper place for judging swine should be provided, as under present conditions it is extremely hard to do exhibitors justice. In any case, it is only natural that the best of judges should sometimes differ. Where the contest is close, there is often a difference of opinion. These differences must always exist, and the best we can do is to get our judges to conform reasonably close to some particular type.

In judging bacon hogs, length is very important, but do not be misled by an animal that is long merely from the snout to the rump; the length should be from the back of the shoulders to the rump. Previous speakers have said very truly that it is unsafe for the breeder to go to extremes in this respect. The breeder knows that it is possible to get too much length, and thus lose constitution and strength; but, in judging a finished hog that is to be killed, we are not concerned so much about constitution as about how the animal will turn out when slaughtered; consequently, we emphasize length. We want a pig that is fairly short from the back of the shoulder forward, because the shoulders and neck are not so valuable as the side and ham.

The character of the spring of rib is very important. The rib should not slope away quickly from the backbone, as this formation indicates an absence of lean meat on the back, and is a conformation that is characteristic of the razor-back. The back should be a little rounded from side to side over the top, but when the rib does turn, it should turn sharply, and come nearly straight down, giving an almost vertical side. This gives a strongly muscled back and a straight full side, and is indicative of a thick belly. If the sides slope in at the bottom instead of being parallel all the way down, it indicates a thin belly. A full flank also indicates thickness of belly.

The ham is very characteristic in the bacon hog; it is a tapering ham, and the flesh should be carried well round on the inside, and down toward the hock. Do not be misled by great development on the outside, for there may be with this a long bare shank. The ham should taper nicely, without looseness or flabbiness.

The conformation of the neck also indicates the character of the carcass. If the neck has a tendency to thicken or arch too much on the top, the fat on the back will run to thick at this point, and, consequently, be lacking in uniformity. For an export Wiltshire side the ham is not so important as the side, the latter having a higher market value. The shoulder is of much less value than the side, which is the reason for asking for a smooth shoulder.

In examining a side of bacon, the points I have mentioned are not all that should be taken into consideration. We must also consider the development of the lean meat over the loin, and the thickness of the belly. We like a thick, fleshy belly so that you have substance there, and a good portion of lean to fat. The outside of the carcass should be smooth and well filled on the loin, without any wrinkling or creasing. The loin should be the same width as the back, and should be full. Wrinkling indicates lack of finish, and a side of inferior quality. This point is equal in importance with the thickness and uniformity of the layer of fat along the back, and the smoothness of the shoulder.

THE BLOCK TEST.

By M. Cumming, B.S.A., Associate Professor of Agriculture, O. A. C., Guelph.

The block test as conducted at the Winter Fair of 1903 was generally conceded to have been the best that has ever been conducted in Ontario. The most marked improvement, compared with previous years, consisted in the much greater uniformity in all the carcasses

whether beef, or mutton, or bacon. It is evident that the educational influences of the previous block tests have had their effect, and that, by giving attention to the judging of the previous years, the live stock men have acquired a much more intimate knowledge of the kind of animal to produce a first-class carcass. The numbers were considerably in advance of those of the previous years. There were in the beef classes 6 pure breds and 11 grades; in the bacon classes, 60 pure breds and 45 grades; and in the mutton classes, 60 pure breds and 14 grades. As a number of men have written in order to ascertain the facts about those animals in which they were interested, we will subjoin tables in which are given these facts. In this table, the animals to which prizes were given are placed in the order of merit, and the others arranged as they were entered in the catalogue.

Beef Cattle.

In the following table will be found the catalogue number, the owner's name, the live weight, the dressed weight, and the percentage dressed weight of all the animals that were slaughtered :

Prize.	Catalogue No.	*Pure Breds.*		Live Weight.	Dressed Weight.	Percentage
1	140	W. J. Rudd, Eden Mills	Devon	1,180	750	63.55
2	146	E. Brien & Sons, Ridgetown	Shorthorn	1,610	974	60.49
3	139	James Sharp, Rockside	Aberdeen Angus	1,450	932	64.27
4	145	James Bowman, Guelph	Aberdeen Angus	1,410	868	62.26
5	144	J. Fried & Sons, Roseville	Shorthorn	1,540	876	63.37
6	143	J. Brown & Sons, Galt	Shorthorn	1,595	1,034	64.82
		Grades.				
1	162	A. McDougal, Guelph		1,150	751	65.29
2	164	M. Wolfe, Hespeler		1,450	957	66.
3	155	A. Hales, Guelph		1,550	947	60.90
4	149	G. B. Hood, Guelph		1,410	861	61.06
	151	J. & R. McQueen, Elora		1,230	745	60.56
	158	J. Brown & Sons, Galt		1,650	1,039	62.96
	157	J. Brown & Sons, Galt		1,570	991	63.92
	156	A. Hales, Guelph		1,525	926	60.72
	154	J. Wilson & Sons, Fergus		1,410	824	58.43
	147	James Gibb, Brooksdale		1,340	838	62.53
	160	N. H. Black, Rockwood		1,200	766	63.83

In the competition for best beef carcass, pure bred, or grade, only a few were entered, and the award went to the third prize grade carcass owned by A. Hales, Guelph.

Sheep.

Eight breeds of sheep were represented in this competition, and a very marked improvement was shown over last year, especially in those breeds which were criticized for inferiority. Last year the best carcasses were shown in the grade classes; this year the highest class carcasses were to be found in the pure breds. It would be difficult, however, to discriminate and state exactly which breed made the best showing. The subjoined tables give most of the facts in regard to the numbers, prize-winnings, owners, and breeds :

Cotswolds.

Yearlings.

1	345	E. Brien & Sons, Ridgetown	232	121	52.15
2	346	E. Brien & Sons, Ridgetown	208	100	48.07
3	343	G. & B. Laird, Guelph	170	95	55.88
4	344	G. & B. Laird, Guelph	186	99	53.22
5	342	N. Park, Norwich	197	111	56.34
	340	John Rawlings, Ravenswood	192	101	52.60
	341	John Rawlings, Ravenswood	182	96	52.74

Prize.	Catalogue No.	Lambs.	Live Weight.	Dressed Weight.	Percentage
1	351	E. Brien & Sons, Ridgetown	134	73	54.47
2	353	Snell & Lyons, Snelgrove	148	74	50.
3	350	G. & B. Laird, Guelph		67	
4	347	W. E. Wright, Glanworth	149	80	53.69
5	349	N. Park, Norwich	135	67	49.70
	352	E. Brien & Sons, Ridgetown	140	73	52.14
	348	W. E. Wright, Glanworth	133	68	51.12

Lincolns.

Yearlings.

1	377	E. & L. Parkinson, Eramosa	223	134	60.08
2	376	J. T. Gibson, Denfield	205	130	63.41

Lambs.

1	378	J. T. Gibson, Denfield	142	76	53.52
2	379	E. & L. Parkinson, Eramosa	133	65	48.87

Leicesters.

Yearlings.

1	417	Hastings Bros., Cross Hill	166	99	59.63
2	415	John Orr, Galt	214	123	57.47
3	416	Hastings Bros., Cross Hill	233	146	62.66
	414	John Kelly, Shakespeare	212	130	61.32

Lambs.

1	419	Hastings Bros., Cross Hill	125	65	52.
2	418	John Orr, Galt	143	72	50.34
3	420	Hastings Bros., Cross Hill	105	55	52.37

Oxfords.

Yearlings.

1	446	J. H. Jull & Son, Burford	164	83	50.60
2	444	W. E. Wright, Glanworth	161	84	52.17
3	455	W. E. Wright, Glanworth	205	123	60.

Lambs.

1	447	W. E. Wright, Glanworth	126	82	65.31
2	448	W. E. Wright, Glanworth	103	53	51.45
3	449	J. H. Jull & Son, Burford	113	55	48.67

Shropshires.

Yearlings.

1	474	W. E. Wright, Glanworth	175	103	58.85
2	473	John Campbell, Woodville	200	120	60.
3	476	A. Rudell, Hespeler	196	114	58.16
4	475	R. Gibson, Delaware	193	111	57.51

Lambs.

1	480	A. Rudell, Hespeler	110	55	50.
2	478	W. E. Wright, Glanworth	111	55	49.54

Southdowns.

Yearlings.

Prize.	Catalogue No.		Live Weight.	Dressed Weight.	Percentage
1	527	R. J. Douglas, Galt	176	104	59.09
2	526	Telford Bros., Paris	138	75	54.34
3	531	Jas. Scott, Aberfoyle	117	67	56.41
4	525	J. Jackson & Son, Abingdon	147	90	61.22
5	528	R. J. Douglas, Galt	225	143	63.55

Lambs.

1	522	R. J. Douglas, Galt	121	65	53.71
2	529	J. Jackson & Son, Abingdon	93	48	51.61
3	533	R. J. Douglas, Galt	100	52	52.
4	530	Telfer Bros., Paris	102	52	50.98

Dorset Horns.

Yearlings.

1	557	R. H. Harding, Thorndale	143	77	53.14
2	555	John Hunter, Woming	172	92	53.48
3	556	John Hunter, Wyoming	187	104	55.61

Lambs.

1	564	A. G. H. Luxton, Milton	95	48	50.52
2	561	R. H. Harding, Thorndale	137	73	53.28
3	559	John Hunter, Wyoming	98	49	50.
4	560	John Hunter, Wyoming	97	49	50.51

Hampshires or Suffolks.

Yearlings.

1	578	Telfer Bros., Paris	171	93	54.38
2	579	James Bowman, Guelph	151	81	53.64
3	577	John Kelly, Shakespeare	239	133	55.64

Lambs.

1	581	James Bowman, Guelph	110	59	53.63
2	580	James Bowman, Guelph	116	61	52.58

Grades.

Yearlings.

1	750	R. J. Douglas, Galt	215	127	59.49
2	749	A. Rudell, Hespeler	180	103	57.22
3	746	R. Gibson, Delaware	230	139	60.43
4	751	E. Brien & Sons, Ridgetown	211	127	60.18
5	747	A. Rudell, Hespeler	190	115	60.52
	752	E. Brien & Sons, Ridgetown	180	93	51.60
	745	J. H. Jull & Son, Burford	177	101	57.62
	744	John Kelly, Shakespeare	177	116	65.53
	748	A. Rudell, Hespeler	195	121	62.05

Lambs.

1	756	A. Rudell, Hespeler	140	76	54.96
2	753	John Campbell, Woodville	131	72	54.96
3	757	A. Rudell, Hespeler	105	55	52.37
4	758	R. J. Douglas, Galt	111	54	48.64
	754	N. Park, Norwich	160	81	50.62

Swine.

In no section was more marked improvement evident than in this exhibit, and seldom have the judges had a more difficult task in awarding prizes. The major share of the prizes, as might be expected, was won by representatives of the Yorkshire and Tamworth breeds. A perusal of the subjoined table will give any other facts of interest.

In this section the animals were shown in lots of three and the carcasses were weighed by lots, so that in the column headed "Dressed weight" will be given the weight of the three carcasses.

Prize.	Catalogue No.	*Pure Breds.* Pure Breds.		Live Weight.	Dressed Weight.	Percentage
1	1088	J. E. Brethour, Burford	Yorkshire	190	457	76.80
				200		
				205		
2	1076	C. Currie, Morristown	Tamworth	196	470	76.79
				204		
				212		
3	1081	D. Douglas & Son, Mitchell	Tamworth	170	416	76.75
				186		
				186		
4	1089	J. E. Brethour, Burford	Yorkshire	205	458	78.55
				192		
				186		
5	1091	J. Featherston & Son, Streetsville	Yorkshire	204	477	78.19
				200		
				206		
6	1090	H. Dedells, Breslau	Yorkshire	204	508	81.02
				212		
				211		
7	1077	R. F. Duck & Son, Pt. Credit	Yorkshire	196	432	79.41
				191		
				157		
8	1075	C. Currie, Morriston	Tamworths	175	425	78.12
				195		
				174		
9	1085	A. Elliott & Son, Galt	Tamworth	195	418	77.39
				168		
				178		
10	1080	D. Douglas & Son, Mitchell	Tamworth	192	446	77.97
				188		
				192		
11	1087	J. Brethour, Burford	Yorkshire	187	472	78.29
				200		
				216		
	1072	W. J. Rudd, Eden Mills	Berkshire	169	366	75.30
				162		
				164		
	1073	W. Wilson, Snelgrove	Berkshire	191	495	81.68
				203		
				212		
	1074	R. H. Harding, Thorndale	Chester White	183	399	72.67
				198		
				168		
	1078	R. F. Duck & Son, Pt. Credit	Yorkshire	200	[illegible]	76.99
				219		
				194		
	1079	D. De Courcey, Bornholm	Chester White	178	436	76.62
				206		
				185		
	1083	E. Brien & Sons, Ridgetown	Berkshire	[illegible]	404	76.95
				176		
				178		

Prize.	Catalogue No.			Live Weight.	Dressed Weight.	Percentage
	1084	D. Stewart, Hampstead	Yorkshire	167	390	75.43
				182		
				168		
	1092	J. Featherston & Son, Streetsville	Yorkshire	207	480	79.33
				205		
				193		
	1093	J. Featherston & Son, Streetsville	Yorkshire	188	435	78.09
				183		
				186		
			Grades.			
1	1109	J. Featherston & Son, Streetsville		194	457	78.38
				196		
				193		
2	1037	C. Currie, Morriston		169	425	79.62
				194		
				172		
3	1106	A. Elliott & Son, Galt		188	453	77.04
				197		
				203		
4	1048	W. E. Pollock, Norwich		180	459	78.59
				206		
				198		
5	1101	Jas. Rettie, Norwich		208	479	81.04
				186		
				197		
6	1095	J. & R. McQueen, Elora		192	443	80.25
				170		
				190		
7	1102	James Rettie, Norwich		199	448	77.50
				193		
				186		
	1032	W. Wilson, Snelgrove		220	406	64.96
				214		
				191		
	1096	F. W. Stone Stock Co, Guelph		175	426	79.32
				182		
				182		
	1097	A. Hales, Guelph		200	492	76.63
				217		
				225		
	1036	C. Currie, Morriston		165	394	79.11
				171		
				162		
	1038	C. Currie, Morriston		187	427	77.49
				185		
				179		
	1043	W. M. Smith, Scotland		169	419	79.14
				188		
				172		
	1044	A. Rudell, Hespeler		216	500	80.90
				190		
				212		
	1045	D. Stewart, Hampstead		177	414	78.11
				179		
				174		

The sweep stakes prize for the best three export bacon hogs, grade or pure bred, was awarded to Mr. J. E. Brethour's first prize group of pure bred Yorkshires, the runners-up being Mr. J. Featherstone's first prize group of grades.

This is now the third year that I have had charge of the block test, and I take this opportunity of expressing my appreciation of the assistance received from Mr. D. G. Hanmer, under whose supervision the animals were brought in in regular order. No one who is

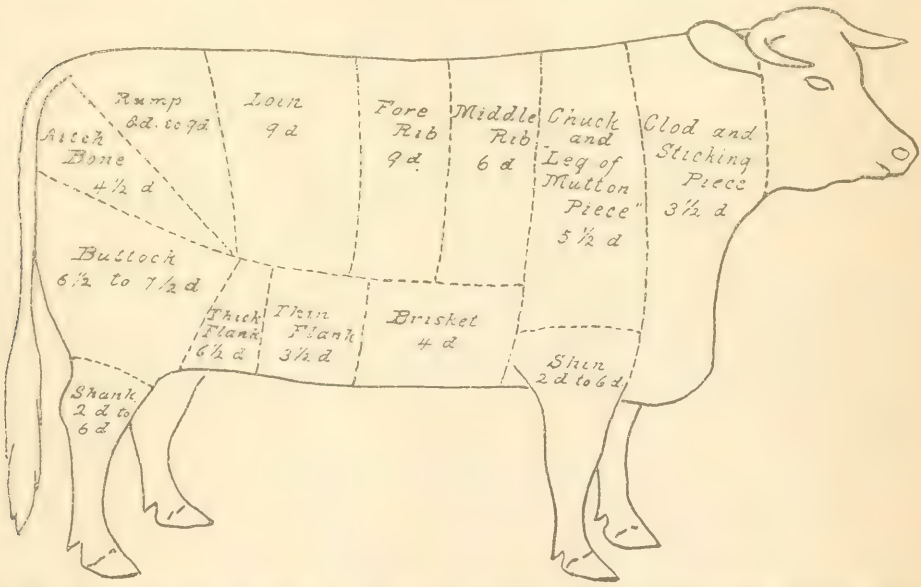
not familiar with the work entailed can understand how much effort this required on Mr. Hanmer's part; but his work in this department, as elsewhere, was above criticism.

JUDGING BEEF CATTLE.

By Prof. G. E. Day, O.A.C., Guelph.

In order to judge beef cattle intelligently, it is necessary to understand the requirements of the market, and to know which parts of the animal have the greatest value from a consumer's standpoint. The accompanying chart gives a good general idea of the relative values of the different parts of a side of beef in the larger markets of the world. A reference to the chart shows that the most valuable cuts are found in the region of the back, extending from a point just forward of the setting of the tail, to a point just back of the shoulder top. From the region between the first point mentioned and the hooks we obtain what is commonly called sirloin steak. From the loin comes our porterhouse steak, and the best rib roasts come next in order as we go forward. The round or "buttock" is also an important part, and has considerable value, as will be seen by the chart.

From what has been said, it is not difficult to understand why we insist that a beef animal should be well packed with flesh between the hook and pin bones, or, in other words, should be broad across the rump; and why we look for a broad loin and a well-sprung rib in the living animal. If the animal lacks in the spring of



rib and is narrow and thin over the loin, it will give a carcass possessing the same peculiarities and, consequently, deficient where the meat is of the greatest value. In examining a living animal, however, we must emphasize not merely the spring of rib and width of loin, but also the thickness of covering over these important parts.

It will also be noticed that the shoulder, or "chuck," is much lower in price than the rib, loin, rump and round, or "buttock." This shows very clearly why a rough, heavy shoulder is objectionable, because it gives undue weight to the cheap end of the carcass. An animal that is extremely deep in front and runs shallow and narrow towards the rear will necessarily give a very undesirable side of beef from a butcher's standpoint. This is why we emphasize smoothness of shoulder and general thickness and depth of body from the shoulder to the rear.

Another important point is the quality of the beef. While it is true that the best market calls for a fat carcass, at the same time the fat should be evenly put on and should be accompanied by good proportion of lean. In handling living fat animals, you will fre-

quently notice ridges or rolls of fat over the rear ribs and extending up towards the loin. Frequently, too, you will find great bunches of fat on each side of the tail. When this condition is present, it gives a carcass that carries much fat that no person could eat. This fault can be noticed in some of the carcasses on exhibition at this Fair. It is true that a little tendency for the fat to form ridges or lumps will be found in the carcass of almost any well-finished animal, but when this condition becomes extreme, it constitutes a very serious defect, and interferes with the value of the most important cuts of the animal.

From the chart, we would naturally conclude that a butcher would like an animal that is somewhat shallow in the body, especially toward the front, and particularly broad over the top. The breeder knows, however, that in order to get an animal that will carry a large amount of valuable meat, it is necessary to have constitution and capacity for a large amount of food, and, therefore, depth of body and width of chest are extremely important from the breeder and feeder's standpoint. As a rule, you will find the beast with the best top, that is to say, with the broadest and most thickly fleshed top, is one that possesses good depth of body throughout.

A steer for feeding should be low set, deep, and short-legged, with reasonably fine bone. He should possess a good coat of fine hair and a thick, mellow skin, which indicates an animal possessing abundant natural flesh. An animal that is naturally thick-fleshed is usually more easily made a little uneven in fat than a thin-fleshed animal, but the thick-fleshed kind is more desirable than the other, in spite of that. The thick-fleshed animal will handle well, even though it is in comparatively thin condition. It has a large amount of muscular tissue along with the fat, and it is this peculiarity that causes us to describe the animal as possessing natural flesh, as opposed to being merely fat. It requires a great deal of practice in handling to be able to detect natural flesh in the fat animal. It is more easily recognized in the comparatively thin animal. The naturally thick-fleshed animal will fatten more quickly than the thin-fleshed kind, and the carcass from such an animal may possess absolutely more fat in pounds than the carcass from the thin-fleshed type, and still not be objectionable, on account of the large proportion of lean which goes with the fat. At the shows, many a good animal is turned down because it is a little lumpy, and the preference given to some smooth animal which is naturally so thin-fleshed that it could not be made lumpy. I do not mean to say that the award should be given to the rough, lumpy animal, but the judge should satisfy himself that the animal he places first is of the naturally thick-when it comes in competition with a thin-fleshed kind whose only recommendation is its smoothness.

The carcasses at this Fair have been judged according to the British market, and not according to local demand. No doubt, everyone knows that a better finished, or, in other words a fatter carcass is demanded by the British market than is commonly seen in our butcher shops in this country.

(At this point, the white steer, which won first prize, and the red steer, which won second prize in the grade Shorthorn class, were brought into the lecture room.)

Mr. M Millan : Do you consider the red steer any too firm in flesh ?

Prof. Day : No, but he is not quite so fat as the white steer. Both are well-fleshed animals.

Q.: How were these animals judged ? From the feeder's or a butcher's standpoint?

A.: I understand that the judges were required to judge the animals from both the feeder's and the butcher's standpoints. These are both good steers, and must have given the judges a good deal of trouble.

Q.: Which of the two would furnish the larger proportion of valuable meat ?

A.: My opinion is not infallible, but I am inclined to think the red steer would furnish the larger proportion of valuable meat. As said before, however, these animals were judged from a feeder's and consumer's standpoint, and the white steer is perhaps a rather better feeder's type, the red being a shade more leggy.

Q.: Would the length of body of the red steer count against him ?

A.: No. The white steer is rather deeper, which makes him look shorter than he really

is. I like the general type of the white steer better than that of the red, though he is perhaps rather too fat for the best quality of beef at the present time.

Q.: Don't you think the white steer will kill out more for his live weight ?

A.: Yes, I think he will.

Mr. M Millan : We should like to know how these animals have been cared for during the last two or three months, so far as housing and feeding is concerned.

Mr. Richardson (owner of the red steer) : In the spring I turned him on the grass for two and a half months, during which time he never tasted meal. Since the middle of July, he has been fed on new hay, ordinary grains, and oil cake.

Q.: Did he fail in flesh when you turned him out on the grass ?

Mr. Richardson : He grew right along and gained in weight and in flesh. I am confident that I could feed this steer for six months and he would be as smooth as he is to-day.

Q.: What kind of grain ?

A.: Oats and barley ?

Col. McCrae : Would feeding meal have helped him while he was on good grass ?

Mr. Richardson : I think it would.

Q.: Would you have fed meal or oil cake ?

A.: I would have fed both.

Col. McCrae : The general opinion in the Old Country is that grass and meal will not digest well together, but that grass and oil cake will.

JUDGING MUTTON SHEEP.

(Illustrated by Live Animals and Dressed Carcasses.)

By A. W. Smith, Maple Lodge.

I want to say a few words in regard to the mutton carcass. In an animal intended for the block, we want the greatest possible amount of meat of the best quality at the points that bring the highest market prices. In the sheep, we always want a very well covered back, as the cuts are valuable right along the back. In some markets, the leg is considered the most valuable part. To produce a good carcass, a sheep should be good on the loin, wide and fairly thick, good on the saddle and round the heart, and good in the leg and twist. One of the most important points in judging a mutton sheep is to see that the flesh handles well. It should not be soft and blubbery, but firm and elastic to the touch. The wool on a sheep makes it more difficult to determine this satisfactorily. Firmness is one of the most important points. Wherever you have softness and blubber, it is an indication of fat, and not of muscle or lean meat, as is desired. This applies to all breeds, whether it is a large breed like the Leicester or the little Southdown. We want the largest proportion of lean meat possible, and we have to estimate when judging alive, as nearly as we can by touch, what is the proportion of lean to fat. To get the best quality of meat, we must make allowance for a certain amount of waste to the consumer and dealer. To the dealer it is more profitable to throw away a certain proportion of fat and have a large proportion of meat of good quality, than it is to have a good deal of fat and but little lean, and that of poor quality. We endeavor to judge fairly from the feeder's and consumer's standpoint.

The breeder, however, has to consider certain things not important to the consumer in order that he may produce the kind of animal the latter asks for. He must have an animal with wide, deep and full chest, and well-developed heart girth and good depth of rib, indicating stamina and constitution, to produce the best carcass. Therefore we cannot judge an animal from one point of view alone.

Now, as to how I endeavor to judge a sheep : Whenever I am selecting an animal to prepare for showing, there are two points which I consider very important. First, a strong,

thickly-fleshed loin, and, second, a good development of heart girth, indicating constitution. In a mutton sheep you must necessarily consider the leg of mutton, which some consider the most important. Some breeds are better than others in that respect; others have a stronger development over the saddle. Some breeds are stronger in the loin than others. All good breeders endeavor to make the breeds strong where they are inclined to be weak. Every breed has its weak point. Those who had control of a breed in times gone by may have been particularly watchful of some points, while they have not recognized the importance of others; or a very prepotent sire with a weakness will stamp that weakness on a flock for years.

Q.: In selecting a ram, what kind of a head would you choose?

Mr. Smith: I would select an extremely masculine type, but at the same time it should be typical of the breed. It should be strong, clean and bold, with a good clear eye, without anything of heaviness about it. The head largely indicates the usefulness of a sheep.

Mr. John Campbell: In judging a fat sheep, is it always easy to tell whether it is fat or lean? What is the best way to distinguish?

Mr. Smith: I will admit that it is sometimes difficult; yet I firmly believe it is possible for experts to become so accustomed to the touch of the animal as to be able to tell flesh from fat.

In feeding, it is impossible to produce anything but fat on some animals; still there is a great deal in the handling and preparation of the sheep. You are more likely to produce a good quality of flesh by feeding for a long period rather than a short one. If you rush an animal, you will probably get a larger proportion of fat to flesh.

As to the quality of the wool; in any breed of sheep any indication of stripping of the wool is to be strongly condemned. The quality of the wool is of much importance. We want as much brightness and lustre in the wool of a feeder as we can possibly get. In every particular the quality of the wool should be as high as possible. Some breeds have a mixture of coarse hair with other of better fibre, which is an objection.

Q.: Apart from the fancy points of the wool, is not wool of secondary consideration as compared with the carcass?

Mr. Smith: On the basis of present values that is true; but we have always to remember that the market may fluctuate in the other direction, and the importance of maintaining a high standard of wool must not be lost sight of. When wool was fifty cents a pound, as it was some years ago, the carcass would undoubtedly be of secondary consideration. I am convinced that the time is not far in the future when wool will be high in price again. Therefore, we must keep the wool of such quality as to be able to take advantage of that.

Q.: The one thing is not inconsistent with the other, I suppose?

A.: Not at all.

Q.: Do you think that exercise has as much to do with the quality of the wool as the food?

A.: I think that plenty of exercise is very important. My sheep have constant exercise. During the summer time they are never in the house, and they always have to walk a certain distance to get their food. This is also conducive to good firm flesh.

Q.: What is your opinion of the wool of the animal you are lecturing from?

A.: In judging lustre wool, the crimp should go right close to the body. The spirals, or curls, should be very distinct all over the body, without any indication of fuzziness anywhere. The wool should be thickly set all over and as uniform as possible.

Q.: Would you advise a man to go into that breed (Leicester)?

A.: Well, that is the breed I have, which I suppose answers the question.

Q.: What breed gives the largest proportion of wool and mutton combined?

A.: I think the Lincoln or the Cotswold. The Lincoln is larger and heavier than the Cotswold, producing greater weight at maturity and a heavier fleece of wool, according to tests made in the United States.

MUTTON SHEEP.

By M. Cumming, Lecturer in Agriculture, O. A. C., Guelph.

As to the valuable part of the mutton carcass, the highest prices are paid for the leg, the loin and the back. The precise valuation varies in different markets and at different times of the year. At the present time in the Chicago market, the highest price is paid for the hotel rack, which runs from the third to the twelfth rib. The next highest price is paid for the leg, and then the loin. In our markets, and in the average markets of the world, the highest prices are paid for the leg, then the loin, and then the rib. That serves to indicate that, in judging mutton sheep, a little more stress should be laid upon the leg than upon the same part in beef cattle.

As far as our test here is concerned, the aim has been to put the highest premium on the highest class mutton, and the judgment has inclined towards the slightly fat rather than the lean carcass. A good piece of mutton should be fairly fat, perhaps rather more so than is consistent with beef; at the same time, there should be as much natural flesh as possible.

Q.: Would that lamb that is so long and narrow developed in a year be as good as the others?

A.: No; it is not the right type. It is long, leggy, narrow over the shoulders, and a poor feeler. To be a good feeder a lamb must be compact, with well-spread ribs, deep and thick through.

Mr. Campbell: With regard to the carcasses present, as nearly as I can remember, the second prize carcass at this show won first place alive both here and at Chicago. The first prize carcass was not at Chicago alive. Number four won second prize alive, both at Chicago and here. Canadian animals won first, second and third, in the face of American competition. In my opinion, more improvement has been made in the line of the mutton carcass during the last three years than in anything else except the bacon hog, and I am not sure that I will except that. Three years ago three-quarters of the mutton carcasses hung up were condemned as being too fat.

Q.: In former years, has the judging, alive and dead, come as near together as this year?

A.: Yes, there was one year when the animal that took first alive won first in the carcass?

Q.: How was No. 2 fed?

Mr. Campbell: It won second prize last year as a lamb. It was taken home and fed all the turnips it could eat; then a ration of clover hay and peas, and then went out. It was carried along slowly and regularly, and instead of pushing it in the fall, it had to be kept back.

Sheep should never be caught hold of by the wool, as it leaves a bruise mark on the carcass. If you will notice the carcasses here you will observe a bruise on the loin of a great many, due to their being pulled off the weighing scales by the wool. You can judge by the extent of the bruise how much the sheep were hurt by this, and this ought to serve as a good demonstration of the importance of handling sheep carefully.

REPORTS OF POULTRY JUDGES.

By N. Cosh, London.

Black Spanish—Cocks: 1st, large, typical bird, with long, smooth face, good color and rather poor comb. 2nd, large, not as good Spanish type as winner; carries tail too high; rather better in comb, face of good length, but rather rough. 3rd, the finest colored bird in the class, but lacks in length of face to those ahead of him. 1st hen, a rare good one, excel-

lent comb, good face, type and color. 2nd and 3rd lose in head, points and type to first. 1st Cockerel, a wonderful bird, good comb, rare length of face, good type; an easy winner. 2nd and 3rd, two good birds, but lack development. 1st Pullet, a running mate to first cockerel, one of rare good quality. 2nd, another good one, but loses in face to first. 3rd, not yet matured. The winning cockerel and pullet in this class are considerably above the average.

Minorcas—Black: A good class of excellent quality. 1st, S. C. Cock, a grand all round bird size, green color and with a nice, neat, medium-size comb; lobe a bit off in color, his only fault. 2nd, another rare one, better in lobe, loses in comb and weight. 3rd, another one, of similar merit to 1st, but not in quite as good condition. 1st Hen, an easy winner; great size, shape and color; in fact, one of the very finest hens we have ever seen. 2nd, grand color, loses in size and shape, also size and color of lobe; 3rd, larger and better in lobe than 2nd, but has several old brown feathers in wing. Cockerels—1st, a large, well-finished fellow, of good type and color; grand lobe, comb not just to our liking: too long and not arched enough. 2nd, grand comb and lobe; good full breast, long back, tail carried well back, but broken somewhat; good color; loses to first through lack of condition. 3rd, loses in head points. 4th, grand color, good lobes, nicely shaped back and tail, weak in comb and deficient in hackle. Pullets, twelve. 1st, a gem, great size, shape and color; wins easily. 2nd, another grand one, well shown. 3rd, splendid color, nice type, not as good in comb and lobes as those ahead of her. 4th, a well-balanced one, with a promising future ahead of her. R. C. Black—No. 1088, cock, a grand, big one, with a fair comb, grand ear lobes and fine face and wattles, good length of back; fairly well up on legs, good full breast, with a nice tail and a very good colored bird. No. 1087, a better comb and color, but smaller in every way and not good Minorca shape. Hens—No. 1097, a nice hen, fails in size, color and shape of the S. C. No. 1096, larger than 1097, and better color, but also not good Minorca shape. Cockerels—No. 1009, a large one, with fair comb and face lobes and wattles; good shape, only weak in color. 1008, also a good one, better in comb and color, but not so large and lofty. 1002, grand color, fine head, but weak in breast and shape of back. Pullets—No. 1120, a grand one in type and shape, and very good color; good length of body, with a fine head, and well shown. No. 1119, also a grand one, not so large, but better color; fine legs. No. 1121, also a good one, but not good shape of back.

White Minorcas: No cocks; 1st hen, a fine one, with good comb and lobes; grand length of back, good deep body and a fine tail, carried well back; grand color. 2nd, also good, not so large, and tail not carried so nicely as 1st; not as full in the breast. Cockerels—1st, a grand one, good comb and lobes, good length of back and tail carried well back; good color and very lofty, only weak in breast shape. 2nd, also good comb, lobes; fails to 1st in shape of back and carriage of tail; a large bird. 3rd, extra comb and lobes; large and lofty; fails to 1st in shape of back. Pullets—1st, good size, shape and color; good comb and lobes; 2nd, also good, not as large as first. 3rd, also good, but out of condition.

Dominiques. Cocks: 1st, small and of only fair quality, 2nd, large and of better type, but out of condition. 3rd, has too much Rock blood in him; bar, narrow comb, tail carried too high. 1st hen, a good type and fair color; the rest only fair. Cockerels—1st wins special for best Dominique in class: neat head and fair shape. Pullets—Four, of very ordinary quality.

A. O. V.—Cocks and hens, four. Both 1sts going to a fine pair of Frizzles; both 2nds to an attractive pair of Yokohamas; 3rd, a pair of Rhode Island Reds. There were nine pairs of young birds; 1st cockerel and pullet going to a pair of Frizzles; both 2nds to a pair of very nice Columbian Wyandottes; 3rd cockerel, a R. I. Red. 3rd pullet, a Silver Pencilled Wyandotte.

By H. B. Donovan, Toronto.

My task was an easy one, the entries, apart from some of the rabbit classes and canaries, being small. But three pair of Pheasants, all in good feather, so they had a bloodless victory, three firsts being awarded to Golden, Silver and Mongolian or English. I can

see no use in showing hen pheasants; they are plain feathered and better at home. Mr. Fox had it all his own way in Lops and Dutch rabbits, showing a really good all round team. The A. O. V. class filled well, five of each sex, and is an unsatisfactory class for anyone to judge. The Angoras should have a class to themselves, as there is little use in showing pure white rabbits, where size and quantity of coat are the main requirements, against such stuff as black and tans, silver greys, etc., that require a true fancier to breed and appreciate. But for the poor condition of a nice rabbit (2838), the Angora would not have had 2nd place.

I have seen better Belgian Hares; the best in shape and color won, and with ease. They must have the hare shape and Rufus color. A hare is not a big, grey rabbit. Too many such are shown for Belgian Hares.

Quite a nice entry in Scotch Fancy Canaries, but too many show too much rough feather. The best in shape and slimness won. A. O. V. just a fair lot, and other birds drew a blank.

By Thos. H. Smelt, Woodstock.

The Poultry Exhibit at the Winter Fair this year far surpassed all previous shows both in quantity and quality. Most of the classes judged by me showed a decided improvement.

Black Javas—1st cock, a fine typical Java, good size, splendid color, good comb, carries his tail right. 2nd cock, rather poor comb, good body, fine in color, good back and breast, shape lacks in style to first. 3rd, very coarse, off on breast shape, in rather poor trim.

1st hen, a grand one, correct type, good size, neat head, well-shaped body, good rich color and an easy winner. 2nd hen, good color and good head, not nearly as typical as the first, being narrow in body and rather poor in the back and tail. 3rd hen, good size, fair type, not as good in the head as the second, rather poor tail and lacking in color.

1st cockerel, a gem, perfect type, good head, fine color, splendid shape and style, good colored legs, won easily. 2nd cockerel, large and well grown, not nearly as typical as the first, poor tail, lacks in back shape, stands a trifle too high, good head and fair color. 3rd hen, a grand shape, good head, splendid body shape and rich in color, but badly colored legs; would easily win second if his legs were dark.

1st pullet, a good type, carries her tail a little too straight, fine color, good head and legs. 2nd pullet, not as good type, lacks in style, rather low set, good color, good legs and comb, head too round for Java. 3rd, good head and comb, not so good in body shape, lacks in color.

Colored Javas.—A good exhibit. The exhibits mostly lack in type and are not nearly as good as Blacks. The most typical were 1st cock, 1st cockerel and 1st pullet. The 1st pullet was the only one in the class having a correct Java head.

Rose Comb White Leghorns.—1st cock, a good stylish bird, having good color in the plumage and legs, nice lobes, comb too large, and carries his tail too high. 2nd cock, nice style, but not as white as I would like, good comb, but poor lobes, good legs and beak. 3rd, lacks in color, fair comb, rather poor lobes, thighs too short, not as good in leg color as second.

1st hen, nice style, good color both in plumage and legs, nice neat comb and lobes, good length of thigh, being the best in the class; 2nd hen, not so stylish, good shape, body lacks in comb and lobes; good leg color, but too short in thigh; 3rd hen, nice, neat head, good color, not as good in shape of back, lacks in leg color and not in good fit.

1st cockerel, a nice stylish fellow, not extra good in surface color, good colored legs and beak, good comb and grand ear-lobes, carries his tail a trifle high. 2nd cockerel, a real nice one, but not developed, good plumage, fine leg color, almost perfect, comb will make a grand one when matured. 3rd cockerel, lacks in color, rather poor legs, fair comb and lobes but too low in station.

1st pullet, a grand shape, perfect back, fair color, rather too much comb, fair lobes, a trifle low on the legs. 2nd, good color, lacks in style to 1st, not as good in shape of body,

fair comb and lobes. 3rd, fair color, neat head, poor legs, rather short in thigh, not fully developed.

Andalusians.—1st cock, a grand one, very stylish, good comb and lobes, almost perfect color, breast lacing well defined and of the right shade of color. 2nd, a fine big bird, good back color, but lacing of breast smoky, good comb and lobes, rather short in legs, also lacks in style to 1st. 3rd, good size, lacks in color of back, breast lacing not distinct and upper part of breast very smoky, fair comb, a little rough in lobes.

1st hen, a gem, very typical, good size, lacing nearly perfect, being a very even color all over, fair comb and lobes hard to beat anywhere. 2nd, a good stylish one, nice comb and lobes, not as evenly laced as 1st, grand lacing on breast, but lacks in lacing of back, but can win in strong company. 3rd hen, a large stylish bird, rather poor face, good comb and lobes, very nicely laced and of good shade of color.

1st cockerel, a stylish one, very typical, grand comb and lobes, good tail, fine back color, good breast and ear-lobes, hard to beat, wins easily. 2nd, a larger bird, good type, grand comb and lobes, too dark in color of plumage. 3rd, good style, good comb and lobes, lacks in back color, too dark in breast.

1st pullet, a gem, very stylish, good comb and lobes, evenly laced all over, and easy winner. 2nd, not so stylish, good shape, almost perfect comb and lobes, well laced, but too dark in shade of color. 3rd, not typical, poor back, fair breast color, lacing of body too light and indistinct.

Golden Spangled Hamburg.—1st cock, a grand one, fine in color, good comb, rather poor lobes. 2nd, not as good in comb, rather better lobes, fine color, not much choice.

1st hen, a nice one, good comb and lobes, good rich color and even spangling. 2nd, better in head, comb and lobes, but lacks in spangling to 1st. 1st cockerel, a gem, nice style, grand spangling, fine breast, almost perfect comb and lobes. 2nd, not so stylish as 1st, and not quite as good in comb and lobes, but very nice spangling. 3rd, poor in color and shows no spangling on breast. 1st pullet, good comb and lobes, nice even spangles, perfect in shape, very stylish. 2nd, good in color, but lacks in shape of spangling, good head and lobes. 3rd, lacks in color and spangling.

Silver Spangled Hamburg.—Cocks: 1st, good style, well marked hackle and saddle, grand tail, nice comb and lobes, wins easily. 2nd, a bit out of condition, rather poor comb, fair lobes, very good in spangling. 3rd, rather poor comb and lobes, not in good trim, spangles not so rich in color, not so stylish as others. Hens: 1st, grand shape, good size, spangling very fine and rich in color, good comb, fine tail, extra good shaped spangles. 2nd, good in shape, good comb, spangling not quite as rich as 1st. 3rd, good style, fair spangling, not so rich in color or shape of spangles, rather poor tail, off in leg color. Cockerels: 1st, a grand one, nice comb and lobes, well marked hackle and saddle, fine spangling and very stylish. 2nd, a good one with nice comb and lobes, lacks in spangling, not as good in neck and saddle. Pullets: 1st, hard to beat in any company, almost perfect spangling, nice comb and lobes, and very stylish. 2nd, a good one, even spangling and good color. 3rd, lacks in color and spangling, not as well matured as 2nd.

Golden Pencilled Hamburg.—Cocks: 1st, good color, fair comb and good lobes, nice even color throughout. 2nd, good lobes, better comb than 1st, but not as even in color. Hens: 1st, good, rich pencilling, good comb and lobes; 2nd, close to 1st, pencilling not quite as distinct. Cockerels: 1st, a very rich colored one, nice tail, good comb and lobes. 2nd, not as good in comb and lobes as 1st, nice color, but lacks in tail to 1st. Pullets: 1st, very neat and stylish, rich pencilling, good comb and lobes. 2nd, close up, not quite as good in pencilling.

Silver Pencilled Hamburgs.—Cocks: 1st, a first-class one, very stylish, good type, splendid color, grand comb and lobes. 2nd, a good one, out of condition, lacks in color to 1st. 1st and 2nd hens, first-class, not much choice. Cockerels: 1st, one of the best ever shown at the Ontario, good comb, perfect lobes and grand tail, good color, wins easily. 2nd, very stylish, nice neat comb, good lobes and tail, not as good colors as 1st. 3rd, a

good one, nice comb and lobes, not as good in tail as 2nd. Pullets: 1st and 2nd, both good, not much choice; 1st a little finer in pencilling.

Black Hamburgs.—Cocks: 1st, a beauty, good size and very stylish, grand color, fine comb and lobes. 2nd, a grand one, good style, not quite as good tail as first; 1st and 2nd hens very close, 1st a little brighter in color than 2nd. Cockerels: 1st, a nice style, rich color, good comb and lobes. 2nd, very neat comb and lobes, good color, not as well developed as 1st. The 1st and 2nd pullets are good to win in any company.

Red Caps made a very good exhibit and showed an improvement in size. The winners were all of good color and showed a marked improvement in type over last year's.

Creve Coeurs were a decided improvement over exhibits of other years, mostly all the birds shown having better size than usual.

La Fleche.—For quality one of the best classes of this variety ever shown here, all the winners being very typical, and of good size. The winning cockerel is a gem and would be hard to beat anywhere.

By L. G. Jarvis, Montreal.

Dorkings, Colored: 14 entries. 1st cock, body long and deep; 2nd, a good one, good in color, hardly as large as 1st, a trifle short on legs; 3rd, smaller, fair color, not in good shape. 1st and 2nd hens about equal, 1st was a little larger, with better comb; 3rd, not as rich in plumage, good shape and standard size. 1st cockerel, great size, strong in bone, with grand tail both in shape and color; 2nd, not as large, good comb and nice in plumage; 3rd, not as deep in body as 1st or 2nd. 1st pullet, a good one, with fine markings, good size and strong in bone; 2nd, hardly as large, will make good hen when matured.

Silver Gray Dorkings: 32 entries, a grand lot, competition keen. 1st cock, a good all-round bird, might be a little more silvery in color, especially in hackle; 2nd, a nice shaped bird, hardly as clean in color as 1st; 3rd and 4th, fair birds, not in good show shape. 1st hen, a gem in color, a trifle undersize and a little short in body; 2nd, larger than 1st, not in as good condition and a little bricky in color of plumage; 3rd, crowding 2nd, slightly off in color, with several broken feathers. Cockerels, 1st, a grand bird, in good color, deep, lustrous black breast and tail, good legs, with well-defined toes, good comb; 2nd, smaller, fair shape, a little dark in color of hackle; 3rd, not deep enough in body, fair in color. 1st pullet, a good one, all Dorking in shape and rich in plumage; 2nd, good color, a trifle short in body; 3rd, a little bricky in wing color, good size and fair shape, comb not as good as 1st or 2nd.

White Dorking: 18 entries. 1st cock, grand comb, grand legs, and extra white in plumage; 2nd, crowding 1st, not as white in color; 3rd, bad comb, fair shaped body, good legs. Hens, 1st, an extra good one, great size, good shape and white; 2nd, hardly as good in comb, otherwise equal; 3rd, smaller, not as white in plumage. 1st cockerel, a very large bird, with properly shaped comb, tail a trifle high, grand color, good legs and toes; 2nd, not as good in shape, a little higher on legs; 3rd, under size, much younger than 1st and 2nd, good shape, fair in color. 1st and 2nd pullets about equal, both extra fine birds, well matured, pure white. 1st better in comb than 2nd. 3rd, short in body and legs, fair in color.

Houdans: 36 entries. There was never a finer exhibit in this class at any previous exhibition. All specimens in the pink of condition. 1st cock, grand shape, large crest and beard, great bone and rich in plumage, distinct white and lustrous black, evenly mottled, black predominating; 2nd, a good one, hardly as distinct in marking; 3rd, a good bird, shows a little too much white in some sections. 1st and 2nd hens about equal, hard to beat: 2nd, not quite as nice in crest shape; 3rd, a good one, shows a little too much white in some parts. 1st cockerel, a little high in tail, otherwise could not find fault with shape, color rich, with distinct markings; 2nd, a little dark, will make a good cock when matured; 3rd, not as distinct in mottling, good crest and beard, good size, a trifle dark on back and a little too high in tail. 1st pullet, a gem, with mottled legs, good color and neat crest and beard; 2nd, a good one, hardly as distinct in markings; 3rd, about equal.

Partridge Wyandottes. 27 entries. 1st cock, nice head, good comb, with a rich red plumage in neck and evenly striped hackle, same can be said of saddle; 2nd, hardly as neat in head and comb, good eye and all Wyandotte in shape; 3rd, hardly depth enough in color, good shape, fair in under color. 1st hen, nice in striping in neck, distinct pencilling, neat head and comb; 2nd, hardly as distinct in pencilling, neat head and comb; 3rd, a little weak in color of plumage, fair comb, good shaped body. Cockerels, 1st, a trifle long in body shape, rich in color, good head, fair comb and very distinct in shape of comb or as lustrous in plumage; 3rd and 4th, good birds, 3rd shorter in back. 1st pullet, distinctly pencilled, rich color, neat head and comb; 2nd, hardly as deep in color, but evenly pencilled, showing a little shafting in breast; 3rd and 4th, good shape, hardly developed.

Poland, W. C. B.: 17 entries, a very nice exhibit. 1st cock, extra large, lustrous black, free from purple, with large, well shaped crest; 2nd, hardly as big crest, not as well formed or as large, rich in color of body; 3rd, fair bird. 1st hen, extra fine, good crest, rich in plumage, absence of purple; 2nd, a good one, not as large in crest; 3rd, shows considerable purple in plumage. 1st cockerel, fair crest, a little loose, rich plumage and good shape in all sections; 2nd, hardly matured, crest fits head too closely; 3rd, not developed. Pullets only medium.

Golden Polands: 11 entries. 1st cock, nicely laced, good tail, nicely shaped crest; 2nd, not as distinctly laced, fair crest, good size; 3rd, not as good in color, fair in crest, tail a trifle high. 1st hen, large, well-formed crest, nicely laced on back and breast; 2nd, hardly as good in crest or lacing on back; 3rd, fair. 1st cockerel, fair crest, rich in color of tail; 2nd, hardly matured, fair in color, crest not as large or as well formed as 1st. 1st pullet, evenly laced, good crest, a trifle mossy on back; 2nd, not as good in lacing or in shape of crest.

Silver Polands: 7 entires, all belonging to one exhibitor, all fair birds.

White Polands: Only 8 entries, all good specimens.

Golden Bearded Polands: 10 entries. 1st cock, a grand bird, large crest, good lacing and all Poland in shape; 2nd, not as good in color of plumage as 1st, a neatly-formed crest, off in color of tail and shape. 1st hen, a good one, rich in lacing, grand crest and beard; 2nd, not as distinct in lacing, good crest. 1st cockerel, good crest and beard, nicely laced on breast, a little mossy in color of tail; 2nd, not as nicely laced on breast as 1st, fair crest; 3rd, not as well formed crest as the other two, and not as distinctly laced. 1st pullet, a good one, nicely laced, good crest and beard, not as large in crest or as well laced on body; 3rd, not equal in several sections.

White Bearded Polands: 13 entries. 1st cock, pure white, grand crest and a typical Poland in shape; 2nd, hardly as white, smaller in crest; 3rd, not as good in all sections. 1st hen, pure white, with well-formed crest and beard; 2nd, not as white or as good in crest. 1st cockerel, a good one, good crest and nice shaped body; 2nd, hardly as white as 1st, with good crest and beard. 1st pullet, neat in all sections; 2nd, not as white.

Buff Laced Polands: 12 birds shown. 1st and 2nd cocks, about equal, nice buff, with nice pale lacing, 1st winning in shape and color of crest, not as rich in color of plumage; 1st and 2nd hens, nicely laced, good crests, nearly equal in all sections, 1st having a neater crest.

Geese.

Toulouse: 23 entries, no culls. 1st gander, fine head, large dewlap, broad, deep breast, very compact body: 2nd, a good one, hardly as large as 1st; 3rd, about equal with 2nd, not as nice in shape of body. 1st goose, immense size, good in all sections, nice head and neck; 2nd and 3rd, not as large, but good ones, 2nd wins over 3rd in color. Other good specimens not placed. 1st gander, young, a nice one, well developed and richly deserving his place; 2nd, not as well matured, nice color, with neat head and neck; 3rd, hardly as large; the same might be said of the 4th. I have been judging this variety of water-fowl for thirty years, and never saw as fine an exhibit at any exhibition on the continent, not excepting the exhibit at the World's Fair at Chicago.

Bremen: 16 entries. The winners really grand birds.

Chinese: 16 entries, with few exceptions all standard shape and color. A few pairs showed a cross between the African, which cross make a large goose, but takes away the graceful neck and the short, plump bodies characteristic of the Chinese variety. We have two varieties of Chinese, the brown and the white. At this exhibition both varieties show together. I endeavor, everything being equal, to divide the prizes between both colors.

A. O. V. Geese: Brought out 22 entries, nearly all pure-bred Africans, and a beautiful class they were. The 1st gander and the 1st goose were as fine specimens as I have seen for some time, in fact hard to beat.

Ducks.

Aylesbury: 16 entries. 1st drake, in the pink of condition, neat head, with broad bill, good length and shape, neat body; 2nd, a good one, hardly as long in body or as neat in head; 3rd, also a good bird. 1st duck, an extra good one, hard to beat, bill a trifle short for size of bird, otherwise hard to find fault in any section; 2nd, hardly as large as 1st, but a good, all-round duck; 3rd, crowding for 2nd place, a trifle shorter in body. 1st drake, young, great length of body, grand bill, wins easily; 2nd, shorter in body and not as well developed; 3rd. in good show shape, with a shorter bill and body.

Rouen: 22 entries. 1st drake, good shape, nice, deep claret-colored breast, free from white edging, color extending well down to legs, bill a little dark in color; 2nd, a good one, hardly as nice in color of breast or body; 3rd, lacks size and not deep enough in color of breast. Ducks, winners all good, 1st showing better in color of bill and more distinct in pencilling on body.

Pekin: 32 entries. A grand class. 1st drake, great size, strong bill and great length of body; 2nd, hardly as large as 1st, good shape, a trifle short in bill; 3rd, not as round in body, good length. with nice bill. 1st duck, great size and wins easily; 2nd, 3rd and 4th, good birds, not as large as 1st. In the young class, winners all extra fine birds.

Cayuga: 22 entries in this class. A grand lot, hardly an inferior bird on exhibition; the winners with a lustrous green sheen on plumage, black bills and legs.

A. O. V. Duck: 19 entries, principally Muscovy, some grand specimens of this variety, both in color and shape.

By Sharp Butterfield, Windsor.

We started out judging with Buff Cochins, the biggest and best class I ever saw at our Canadian shows, and well I may so, for amongst the winners were several Boston and Chicago winners of last year. Cocks, nine in number, 1st an immensely big fellow, a little longer on leg than we like, but for length of feather he stood out in the class, a little higher in color than most breeders prefer, but the black fluff and leg feathers so profuse, makes him a desirable bird for any breeder's yard; 2nd, nicely colored, but not long enough in feather to be called an ideal Cochin, not good enough on back shape, nor long enough nor full enough in saddle feathers; 3rd, a gem of a Cochin for shape and style, and if it had not been for its very poor comb he would have gone up higher; 4th, another good bird, and so was catalogue No. 90; in fact, had five of the best been away, there would then have been left three very creditable winners. Hens, six entries, 1st, a great big, good one, very even and sound in color, what is generally called a deep, rich golden buff, her shape and size make her just about good enough for a model; 2nd, a good one, but nothing like the 1st in size or length of feather, her color was very uniform, and of the golden buff order, a very pretty hen; 3rd, a very good hen, and so was the 4th, if the other two had been away. The other two hens very good for ordinary good company, but the winners have been and are good enough to go and repeat again at Boston and Chicago in the condition they were shown at our Ontario. Cockerels, nine entries, 1st, is grandly pencilled, but too coarse the same lines as 1st hen; 2nd, a real good big fellow, wants about six months to a year to develop him, and if all goes well with him, will make one of the best cocks ever seen in Canada. He has the size and frame, but at the present time shows leggy; 3rd, a smaller bird, but a grand cockerel; 4th, another grandly-finished bird, and this class of cockerels.

bar size in most of them, could get the lion's share of prizes at almost any show, not excepting Boston, Chicago or New York. Pullets, ten entries, 1st, a great big peach, in fine show condition, and just as easy a winner in her class as 1st hen in her class; 2nd, another good Cochin, both in shape and length of feather, beautiful in shape and carriage, ideal Cochin, one of them, like Sharp Bros. will say, "She is always posing"; 3rd, a very similar pullet; 4th, another good pullet; in fact the whole class was good, hardly equal to the hen class as a whole. I cannot speak too highly of this class, for I believe there were more really high-class birds in the Buff Cochin classes than any exhibit at the show.

Partridge Cochins: Cocks, three entries, 1st asks no odds from any of the Buff Cochin males, either in shape, size or feathering; 2nd, a very good bird, but too short in feather; 3rd, a larger bird, but very plainly made. Hens, two entries, 1st, is grandly pencilled, but too coarse in pencilling, and too light in color pencilling to make her a winner in very hot company; 2nd, just an ordinary fair Partridge Cochin, her worst fault being too short in feather. Cockerels, three entries, 1st, an easy winner; 2nd, too young and immatured. Pullets, three entries, 1st, grandly pencilled all over and about every feather in the fluff pencilled as good as her back; 2nd and 3rd, fair pullets. Partridge Cochin class was very disappointing in numbers, not nearly as good as at Toronto last fall; I think the falling off in this class must have been caused by a tornado.

White Wyandottes: Cocks, 15 entries. 1st, an easy walk-over; I called him the best male in White Wyandottes; only one place he lacked, and that was in fullness of cushion; and had he had the fullness of cushion, and shown in such grand condition, would venture to say that he would get into the big end of the money even at New York or Boston, for his under line and top line make him a model Wyandotte male; 2nd, another good bird, but the length of his shanks and thigh takes away the beauty of him; but still he is a very high-class bird, in grand condition, and I see by the catalogue they both belonged to Mr. Massie. Well we here congratulate Mr. Massie that he certainly does know how to place male birds in grand show condition; 3rd, very much after the type of 2nd, but not as good a bird in any particular; 4th, too small for very fast company, otherwise a good small Wyandotte cock. Now, after the four birds named, I did not see anything very striking in the class; too long on legs, too long on back, too straight on back, and not in it with the four placed birds. Hens, 21 entries, were disappointing to me. 1st, a fair middling hen; 2nd, a long way ahead, but shown in such poor condition; she might have looked much better if she had not been messed up so much, no doubt by her mate, and I am sure our Ontario Show has grown to be one of the best poultry shows ever held anywhere, but it could be improved in one particular, and that is, single birds in the coops; 3rd, a fair, good hen; 4th, another, fair good hen; 5th, another. I have said hens were disappointing; I noticed several hens in grand show condition, and if the combs had been changed that would have been about all that was necessary to have done most of the winning in the White Rock class. Cockerels, 31 entries. 1st, quite a good one, especially good in back shape and cushion; 2nd, a counterpart of 1st cock, nice under line and top line, deficient in comb or would have placed him 1st; 3rd, a very similar bird to 2nd, lacked size, not wide enough in body or cushion, but still a rather nice cockerel; 4th and 5th, had the fault of 2nd prize cock, too long on shanks and thighs. Had they been as short as 1st cock, would have crowded out 1st and 2nd; 6th, another very good cockerel; I may say in this class there was about a dozen very fine specimens. Pullets, 36 entries. This class was disappointing, like the hens. 1st, the best shaped pullet, and she would have been better if her body had not been so long, much the same shape as 2nd prize hen, and outside of these two females for Wyandotte shape, it would have hardly mattered much where the five prizes went, for there were about 18 pullets in nice show shape, but not one catching to the eye in the shape or style of a Wyandotte. Maybe my ideas of White Wyandottes are very high; you could hardly expect them to be otherwise, after seeing the greatest the world has ever produced in Boston for the last six years. I wanted to buy a cockerel which did not get a place last Boston show, and the owner, I thought, would not place a very high figure, when he had won 1st and 3rd on other two. He said: "If that cockerel had not had a crooked toe, I think

he should win 1st." I said: "What will you take for him?" He said. "1st cockerel, $150; 3rd, cockerel, $125; the cockerel I wanted, $200." I just mention this to show what shape and style are worth. I believe the man did not need the money, and I did not need the cockerel so badly to pay $200 for it, for a friend of mine in the west had commissioned me to go $100. Now, I say this to White Wyandotte breeders: You have hardly got as much to contend with as Golden and Silver Wyandotte breeders; they are expected to get the color and the big, clean centres free from any frosting, and they have to sometimes sacrifice a great deal of shape, to get the lacing, but in White Wyandottes we should try and get as perfect shape and style as is possible, for there is only one thing to get, whiteness of plumage, after we have attained the desired shape. Now, do not think I am saying it is easy to breed high-class White Wyandottes. I say it is not, for so much is expected of the White Wyandottes in shape that they are difficult to produce in very high-class specimens, hence the highest price is paid in White Wyandottes, higher than any other of the Wyandotte family. And in the records of our Canadian breeders at all the big American shows, White Wyandottes are, I may say, the only class of birds in which the Americans are much ahead of us. These few remarks on White Wyandottes are made for the good of the breeders, to endeavor to get shape in Wyandottes; there is not one section of a real high-class Wyandotte that would look becoming on a White Plymouth Rock, or vice versa; nothing you could borrow from a high-class White Rock would help to better a Wyandotte in shape.

Games, Black Reds: Cocks, 1st, easily 1st in his class, looks like 1st cockerel last year, and he is just as much ahead this year as he was last year in the class of cockerels; a short description may be read with interest by those who did not have the pleasure of seeing him last year or this. My idea of a Game, standard or otherwise, is that without good sound legs to stand on they are very faulty, just about as much as a grand horse with poor, weakly legs, and, some say it is hereditary, unless it may have been caused by accident: 1st, strong, long and sound on legs, then we look for the other good things. 1st cock, sound and strong on legs and legs set well apart, the thigh being if anything on the outside of the body, showing the bird is constitutionally strong, long, clean head; where the head is set on the neck the juncture is so fine that head and neck are in harmony. This bird is long and clean in neck with about perfect color, and very short in hackle feather. Back as perfect in shape as one would wish. Tail, just about the best I ever saw on a cock, sickles one-half inch wide, and green sheen almost to brown, breast and body all one would wish, saddle, hackle and neck hackle matching in light lemon or light orange; this bird has one grand thing about him, and that is that he carries his wings perfectly, not half crossing his back, like a great many of the games at all shows we attend; 2nd, looks like 2nd cockerel last year; he is a very good bird, but too loose and soft in feather to be ranked with the 1st, but there is quite a little similarity in the general outlines; 3rd, a very nice colored bird, but the neck hackle is almost full enough for a Leghorn, hackle too long, too abundant and too loose; 4th, a very nice bird, in poor condition, with wings half over his back; doesn't look like 1st cock last year looked. Just about as much difference as one can see when a man is well and when he is sick. Cockerels, 1st, 2nd, 3rd and 4th, any one of them as good as the best one shown at our Ontario shows, not even excepting the last year's cockerels I have spoken so well of. In this class were six high-class birds, looking like six full-grown brothers; then there was another good cockerel hardly fit yet. Now, in this class there was a bird left out which several of the competitors wanted to buy; one was asking the owner what he wanted for the cockerel that did not get a place, and the man said twenty guineas. I almost thought I was at the Palace Show. Just about this time along came Mr. Barber, and he said: "I like the cockerel you left out. What price do you hold him at, Mr. Butler." "Twenty guineas," said Mr. Butler. "Mr. Barber asked: "What is the matter with him?" I said not sound enough in legs and not in show condition, for, I said, I cannot tolerate wings over the backs of Game fowls. Now, I want to give my reasons for placing the awards as I did. I said a Game cock or hen (either in Game or Game Bantams) with wings carried over their backs is an abomination to me, and I certainly would endorse a change in the standard in making it a disqualification, or very nearly so. And

then, in a few years more Games shown with wings crossing the back-would be just as scarce as we find the Games carrying good wings to-day. Hens, 7 entries, 1st hen and the only decent hen that carried her wings in the proper condition; 2nd and 3rd, good ones, both carrying their wings across the back, almost as if they had actually become a fixture. Now, I certainly should have put these two hens higher up but for that very serious fault; 1st hen, grand shape body, carried about the best of tails and at about a very proper angle; not so good in hen as 2nd and 3rd, but not much fault could be found with her, excepting a little thick in head. Pullets, 6 entries, 1st an easy win, and carried her wings perfectly; 2nd, only difference was the carriage of wings; 3rd, smaller, carried her wings correctly and much the best colored female in the Black Red class, free from shafting, and a golden brown so pleasing in color.

Brown Reds, cocks, 2 entries; not up to my expectation; condition prevailed. Hens, 1st and 2nd, two good hens, rich in color; 3rd, too light in color undressed. Cockerels, 3 entries, 1st, the making of a good bird; 2nd and 3rd, fair to middling. Pullets, 4,—1st and 2nd, easy winners; 3rd, lacks in glossy appearance.

Duckwings, cocks, 3 entries: 1st, won pretty much on color; 2nd, a better bird to our thinking excepting fluff being so white and grey. Hens, 4,—1st, a grand hen in color, and should have been shown singly, for the cock was knocking her about so much that the day after judging she seemed all out of health; 2nd, rather a nice model; the two remaining hens very near a tie. Cockerels,—1st, a fairly good silver; 2nd and 3rd, too young for good company.

Pyles, cocks, 4: 1st, a very good all round cock, except too much of color on breast, grand, straight legs, carries himself grandly, but looser in feather than liked; 2nd, a very good colored bird, but lacks breast shape very much and not large enough in size; 3rd, a fair bird. Hens, 4,—1st, about the best colored female in the class, and would have to give way to 2nd hen if it were not for 2nd hen being so red on wing, otherwise she is a high class hen, fit for the fastest company, excepting too much color. Cockerels, 3,—1st, shown in good condition, but the spurs would almost convince one he was a late last year bird, but the head and face indicated he was an early cockerel, may have been a February bird; 2nd, the makings of a very good one, but sadly out of condition, which spoilt his chance; 3rd, too young to say much about. Pullets, 6,—1st, same fault as 2nd hen, too red on wing, otherwise right clean ahead, a very good pullet; 3rd, a good pullet, not fit yet. Now, in this class of birds the man who has Pyle males or females of Standard color, or nearly so, is in some cases apt to place too much stress on that. Why, occasionally we have seen Pit Games beautiful in color, but could any reasonable judge put them ahead of ideal shaped birds, just for that simple fact? The Pit Game female was so superior in color, and hence we have to deviate from Standard color to get the Standard shape and carriage, and when one looks over the different sections of the birds one founds his decision on the best shaped bird, taking in all the faults and good points of birds in the class.

Indian Games, 10 cocks: 1st, an easy winner, short back, wide across the shoulder, nice legs, both in color and shape, and carried about a perfect tail; 2nd, about the only difference was in carriage of tail, which was too much spread; 3rd, smaller, but quite a typical fellow; 4th, larger bird than 3rd, but width did not help him any higher up. Hens, 11, 1st a really grand colored hen and in great show shape; she would be much better if she were half as big again; 2nd, a gem in shape, not as good in color and lacing; 3rd, very similar to 1st, but not so clean in her lacing; 4th, following very closely up. Cockerels, 8, 1st, easy win, shape and type about all that could be desired, carrying a perfect tail; 2nd, another good bird, but not nearly in such show condition as 1st, 3rd, a grand promising cockerel, and may be heard of later; 4th, another promising fellow. Pullets, 6, 1st, and 2nd, easy, ground color rich red, and grand clean pencilling; 3rd, lacks in ground color, but about equal or slightly better in shape; 4th, a good lovely pullet, not clean enough in ground color.

Game Bantams: A grand class of good birds. Black Reds, cocks, 8—1st, if lighter in neck hackle and saddle, would be the most perfect specimen I ever saw, not excepting the winners at the Palace on my last visit. Few men have had the opportunity of seeing the Palace

exhibit of Game Bantams, and when Mr. Ainscough does accomplish so much, why he must be the envy of all competitors, and besides, just think of the money the fanciers who have lots of it would give to beat Hugo Ainscough, and though they sell probably $30,000 to $40,000 worth a year of Black Breasted Red Bantams, yet year after year they go along, and about get all the prizes on Black Red Game Bantam chicks, no matter who may do the judging. Just think of it. At the late Palace show, 1st and 2nd cocks, hens, 1st and 4th cockerels in a class of 19, win the five prizes; then in pullets, 1st, 2nd, 3rd and 4th and both silver cups. I merely mention this to get at the 1st cockerel at the Palace. Just such a bird as I placed 1st at our Ontario, excepting he was grand in hackle and saddle, just to my mind the best male in any kind of Game Bantams; 2nd, a grand colored bird, a grand shaped bird, lots of length of leg, grand head, long, clean cut neck, with wing butts standing right away from his shoulders, rather long and loose in wing, and did not carry his tail in such order as 1st; 3rd, looked like 1st cockerel last year, but not showing himself to the best. Other good ones in class, but too soft and spongy looking. I saw quite a crowd standing in the next alley watching me place the awards, and I don't think there could be one man who could find fault with the awards. And if we could have Game Bantams under as favorable conditions as at Guelph, I feel I could much better satisfy myself in placing awards, for in Toronto those coops are about the only thing in Toronto not up-to-date. I do hope Dr. Orr and Directors will give the bantams the consideration they deserve, when there is such shown at that show of Game Bantams, and probably it would take $5,000 to buy the whole classes. And when I read the article written by Mr. Bertie, and I believe what he said, the birds suffer more from their cramped quarters than the length of time they are on exhibition, and I think of writing Mr. Chambers to use his best endeavors, which I know he will succeed, in remedying that great wrong the exhibitors feel. Hens, 11,—1st a gem. Smallness of size with all the other good qualities that make up a high-class Bantam hen; 2nd and 3rd, both good hens, but lack the hardness or shortness of feather of 1st hen. In this class I noticed about five very creditable hens, and I would have no difficulty in awarding the three prizes over again. Cockerels, 11,—1st, an easy winner, as he should have been at Toronto if the bird had not been overfed, which made him to fail on the day of judging, on the second day he felt all right and should have won easily; I think all breeders will agree that he is a grand bird, and when feeling all right will take an Ainscough's best bird to beat him; 2nd and 3rd, too soft to compare with him, but both good birds in size, color and shape. I wish the Ontario at the next show would reserve, say, three coops for next and future years, about the middle of the Game Bantam class, so that I can place each bird with a good fighting chance in the same light and same elevation. Two tiers in height are hard to get the whole for the prizes correctly, but it can be done by having all in equal light and elevation. Pullets, 14,—1st, had an easy overwalker, her saddle and tail just about perfection, and I think if anything she was about the most accomplished Bantam in the whole Game Bantam family; 2nd and 3rd, both really good ones, but lack the hardness of feather of 1st pullet. I could in this class make especial mention of several, but for the trouble there was to have them to be seen to the best advantage, and just three reserved coops on the upper tier would have given me the chance of describing the birds as I would have liked to. I know there were lots of them deserving of special mention. Brown Reds: Two cocks, fairly good birds. Hens, 7,—1st, reachy and grand in length of leg; 2nd and 3rd, good hens, but not so bright in color as 1st and 2nd, in big Brown Red Game hens. Cockerels, 4,—1st a very good bird, but lacking in breast and shoulder color; 2nd, not so good in color as 1st; 3rd, not as good as 2nd in color, nor in any particular. Pullets, 3,—1st, small, a nice one all over, except color being too poor; 2nd, larger and softer in feather; 3rd, getting to the old-fashioned type of twenty years ago.

Duckwings, 5: 1st, just so easy a walkover, that it made the other competitors look middling good birds; 2nd, just a fairly good bird for an ordinary show. Hens, 4,—1st, like the cock, an easy walkover, clean cut in every section, and very finely drawn; 2nd and 3rd, very deficient in color, comparing them with 1st prize cock. Pullets, 5,—1st, easy; 2nd and 3rd, very creditable birds.

Pyles, cocks, 10 : 1st, much after the order of 1st Black Red cock; 2nd, quite a showy bird; 3rd, easily the best bird in cock class, but for his size, looked like 1st cockerel last year; 4th, a fair good bird. Hens, 13,—1st looked like 1st Toronto hen, a grand good hen, and if better in color would consider her a hen good enough to get high up in the money at any show; 2nd, a very good hen, slightly better in color: 3rd. another good one; 4th, another good one, and I think Mr. Tyson, living in Guelph, might jog the memory of Mr. Saunders when he is arranging the exhibits to leave three vacant coops, and same obliging John Saunders will do it. Cockerels, 7, not a strong class. 1st, quite a nice, reachy, smart, good-acting fellow; 2nd and 3rd. want time to develop. Pullets. 15,—1st, an easy winner in color and style combined; 2nd, a good one, but wants thirty more days to get her at her best; 3rd and 4th, both good pullets. The class of Pyle was a good big class.

White Games, cocks, 2 : In awarding the prizes I could not find coop number on one bird, so could not tell whether he was entered or not, but asked Mr. Donovan, and he said there were two entered, so put 1st on cock without number, much the better bird of the two. Hens.—1st and 2nd, both good ones. Cockerels,—1st, quite, a good one; 2nd, very fair. Pullets, 3,—1st, quite a good Game Bantam; 2nd and 3rd, both creditable birds. A few years ago I kept putting the willow-legged Bantams back for willow legs, and to-day we find as good or better than at that time, and all good yellow legs. Allow me to say I am delighted with the improvement that is being made.

A. O. V. Game Bantams : 1st cock, smaller in size than the other two, and lacing on breast stopped at the juncture of breast and body, and thighs black; 2nd, a clean-looking Bantam, blacker in body and thighs than 3rd; the 3rd cock has more good things about him than the other two in most sections, but the breast lacing goes all over the body and right down his thighs to his shanks, a thing that should not be on a brown red or birchen male, hence my placing this bird third. Hens,—1st, quite a good birchen; 2nd, a little the better color, but larger and looser in feather; 3rd hen, not as good an all round hen. Cockerels and pullets, rather a promising lot. Game Bantams as a whole made up of high-class birds, fit to get a goodly share of prizes at any show.

Golden Sebrights : Very good, especially 1st cock, quite a good bird in shape; 1st hen, a remarkably good one; 1st cockerel, quite a stylish Sebright, small in bone and full of style; 1st pullet, just one of the same stamp. Most of the Sebrights are on the large size, and smallness of size is very desirable.

Silver Sebrights : 1st cock, very clean and narrowly laced; 1st hen would make a good mate for him if shown in pairs; 1st cockerel and 1st pullet an easy walkover.

Black Rose Combed : 1st cock, quite an attractive looking bird, with fine earlobes; 1st hen, shown in much the best condition, and a very fine specimen she is; 1st cockerel, the best I have ever seen, not excepting the 1st Palace cockerel, which was priced in catalogue 50 pounds. This cockerel is small, and seemed fully developed, grand in color, perfect in earlobe and comb, with a grand, large, well-carried tail. 1st and 2nd pullet, very good one; so also was the 3rd. The class a very good one.

White Cochin : 1st cock, a Cochin all over, especially grand in cushion; 2nd, another good one, the only place he lacks is fullness of cushion; 3rd, another good one; in fact, the whole five very good; not often have I seen as many good ones in competition at any show. Hens,—another strong class; 1st hen, a grand shaped bird; 2nd hen, another good one; 3rd hen, another good one,—this hen class was an exhibit of high-classed females. Cockerels,—1st and 2nd a walkover; 3rd, a grand bird also, and some very good ones left out for the prize money. Pullets,—1st and 2nd, in grand show shape, with immensely feathered legs and feet; 3rd, close up to 1st and 2nd. This, I think, is the best lot of White Cochin Bantams I ever saw at our Ontario, 22 in number.

Buff Cochin Bantams. 1st, cock, quite a small, good Cochin, very perfect in shape ; 2nd, a grand color, and in the pink of condition ; about the only faults I saw in him were size, and rather scant in cushion ; not in good condition. Hens.—1st, just about perfect in color, an easy win ; second, another good one ; 3rd, also a very good one. Cockerels—

1st, 2nd and 3rd, all very creditable birds. Pullets—1st wins easy in color and shape ; 2nd and 3rd, very close together in merit.

Black Cochin Bantams. 1st, cock, one of the best I have seen for several years, very rich in color, and short-legged, well furnished and sound in neck hackle, a real good one; 2nd, not nearly so good in any section ; 3rd, a nice Cochin in shape, but lacks color. Hens—1st, like cock, an easy win ; 2nd, a good shaped hen, not in the best of condition ; 3rd, a very good hen. Cockerels—1st and 2nd, an easy win ; 3rd, very promising. Pullets—1st, a very good pullet, wins on condition ; 2nd, a real good one, but not in show condition ; she seems to have been hurt ; 3rd, rather large in size. I noticed in this class a great many birds that seemed to have their tail feathers pulled, not only the tail feathers, but even the coverts gone also. Some breeders have an idea the shorter the tail on Cochins the better. Now, the Standard reads right in my opinion, main tail short, and spread at the base, well filled underneath, with a profusion of soft feathers, showing as little stiff feathers as possible, giving the saddle and tail as a whole a soft, round, bulky appearance. Now, how can birds with tails pulled meet the requirements ? I like to see the tail on any Cochin, no matter whether large Cochin or Cochin Bantam.

Partridge Cochin Bantams. 1st, cock, an easy win ; 2nd, too long in back, not shapely ; 3rd, too large in size ; in fact, all the cocks in this class would have been better if very much smaller. Hens—1st, not quite so Cochiny as 3rd hen ; if she was, with her color and pencilling, she could win almost anywhere, still she is not bad in shape, nor even larger in size than 3rd hen, but 3rd hen is a Cochin form from her toe nails to the crown of her head, a typical Cochin ; 3rd, a very good hen. Cockerels—1st, 2nd and 3rd, getting very nearly ideal Cochins, short on legs, and 1st and 2nd cockerels in back shape would not disgrace a big Cochin, and for color they are nearing the big Partridge Cochins. 1st pullet, like 1st hen, a long way ahead in color and pencilling ; 2nd and 3rd, quite shapely, but deficient in pencilling. Still, I think the winning birds are a very decided improvement over the last few years.

White Booted Bantams. In this class, as has been usual I may say for ten years, are shown whiskered and plain. Now, to my mind, the whiskered are a decided improvement over the plain, and those interested in breeding and showing them should not forget to have the description in Booted Bantams changed at revision of the new Standard at Rochester next February. I think all breeders of Booted Bantams must admit they look handsomer with their grand, full beards, and I think it would be proper to have that defined, bearded or un-bearded. I notice a special of $5 for the best pair of smooth-faced. Well, I have no alternative but 2nd cock and 3rd pullet, even when nearly all the 1st prizes had gone on the bearded. Brother Oke, rise to the occasion, and soon we will see a very decided advance made in Booted Bantams by the Standard describing what constitutes a high-class white-booted Bantam.

Black Tailed Japs. Cock class not as good as usual ; 1st cock, a fair, good bird. Hens—1st, quite a way ahead. Cockerels—1st, very fine, as was also 1st pullet. White Japs are a very good class all around, not even a middling good one put in an appearance, but all of them very creditable birds.

Polish Bantams. 1st cock an easy winner ; 2nd, too large in size. Hens—1st, quite a good one ; 2nd hen a good one, and so was the 3rd. Cockerels and pullets very good.

In any other variety of Bantams I noticed some grand black Japs, grand in shape and color, short in legs and good in shape, in fact, all the winners are birds of good merit, and well deserving the premium money.

REPORT ON TURKEY EXHIBIT.

By James Anderson, Guelph.

The show of turkeys was superior to last year, all six breeds being represented, viz., Bronze, White Holland, Black, Narragansett, Slate and Buff. In the aged Bronze cocks, the 1st prize bird was a perfect specimen of a Bronze turkey. He must have weigher over 40 pounds, and the plumage and symmetry were perfect ; I never saw much, if any, better. The 2nd and 3rd prize birds were also good. The 4th was a fine bird, having taken 1st as a yearling at the last show, but had met with an accident to his breast, which threw him back, but may not injure him for breeding purposes.

In the yearling class of cocks, the 1st was an excellent specimen of the breed, grand plumage ; the others were not so much behind in either symmetry or size. In the young cocks the show was very good, some of them a little leggy in our opinion, but fine, large birds. The 4th prize bird was very large, but a little too long in the legs ; he will be a fine bird when he gets his plumage another year.

The 1st and 2nd prize old hens were very fine. The others were a shade dark in their plumage. The yearling hens were extra good, and I have no doubt will be heard of as prize takers at future shows. The young pullets were also a good class.

In the White Holland class there were some very fine specimens, the old cock birds being particularly large and having fine, clean plumage. The number of entries in this class were more numerous than last year, and some six different breeders showed some very good specimens.

The Black Turkeys were not numerous, but some fine, large birds were shown. They evidently have been crossing with the Bronze to get size, as the barring in the tails of some of the birds showed.

The Slate-colored turkeys were fine large birds, but not so pure in color as last year, a great number of the birds having black blotches on their wings and bodies, which certainly disqualifies them.

The Narragansett is a beautifully-marked bird, and has a fine, heavy, plump body. The specimens shown were excellent. I think they must be very hardy, profitable turkeys to raise for a general purpose bird. The markings of the bird are beautiful, being metallic, black and white intermingled.

The Buff birds were far superior to last year. Some of them were splendid specimens, having fine, plump, well-shaped bodies, and must be an easily-kept, profitable bird. They were also more numerous than last year, and made a fine display.

The Bronze is the most popular, and is supposed to be the hardiest of the different breeds. Some of the White Holland cocks were very large, fine birds, and it is claimed that they do not wander so far from home as do the Bronze. Turkeys are very profitable fowl for the farmer, as they consume so many injurious insects, and after the first six weeks are the hardiest of all fowl, and a flock should be raised on every farm in the country.

LIST OF PRIZE WINNERS, 1903.

CATTLE.

SHORTHORNS.

1. Jas. Fried & Son, Roseville, Barney B. ; sire, Knuckle Duster, 28868 ; dam, Princess Josie, 27639.
2. W. A. Young, Glanford, Harry Stanley : sire, Prince William, 31054 ; dam, Mary Ann, Vol. XIII.
3. E. Brien & Sons, Ridgetown, Protection ; sire, Earl of Howard, 29986 ; dam, Fairy Queen, 34627.
4. W. H. Reid, Kingston.

Steer, 1 yr. and under 2. Two entries.

1. W. A. Young, Glanford, Barney; sire, Prince William, 31054; dam, Joan of Arc, Vol. XIV.
2. Jos. Kirby, Armstrong's Mills, King Billy; sire, King William, 29550; dam, Trio 2nd, 36038.

Steer, under 1 year. Four entries.

1. Leslie & Pearen, Acton, Col. White; sire, Lord Claude, 41559; dam, Lily Bell,
2. Leslie & Pearen, Acton, Capt. White; sire, Lord Lancaster, 35124; dam, Erin Lass, 36430.
3. J. Fried & Sons, Roseville, Beauchamp 4th; sire, Beauchamp, 32053; dam, Victoria, 45083.
4. John Brown & Sons, Galt, White Duke; sire, Little Bobs, 34742; dam, May Queen, 4th, 29935.

Cow or Heifer, 3 yrs. and over. Thirteen entries.

1. John Brown & Sons, Galt, Neva; sire, Minto, 28948; dam, Lily Rose, 22763.
2. F. Murdoch, Ponsonby, Nonpariel of Avondale XVII; sire, Hillsburg Tom, 26756; dam, Nonpariel 4th, 24633.
3. A. Johnston, Greenwood, Beauty 21st, Vol. XX; sire, Mirabeau, 64446; dam, Beauty 19th, 31196.
4. Jas. Leask, Greenbank, Money May, 40462; sire, Lord Moneyfuffel, 27623; dam, Mayflower, 30157.
5. F. Martindale & Son, York, Nonpariel of York, 32784; sire, Souter Johnny, 23886; dam, Nonpariel 53rd, 25599.

Heifer, 2 yrs. and under 3. Three entries.

1. J. Fried & Sons, Roseville, Golden Crown Lady; sire Kinellar Stamp, 28867; dam, Golden Drop, 32054.
2. Goodfellow Bros., Macville, Lady Fragrance 9th, Vol. 20; sire, Lochnagar, 74854; dam, Lady Fragrance 7th, XXXVIII.
3. F. Martindale & Son, York, Red Daisy, 46024; sire, Kinellar of York, 24504; dam, Bell of York, 32723.

Heifer under 2 yrs. Seven entries.

1. Leslie & Pearen, Acton, May Queen 3rd; sire, Royal Statesman, 29142; dam, May Queen 2nd, 26524.
2. Goodfellow Bros., Macville, Mamia Stanford, Vol. XIX; sire, Golden Standard, 34686; dam, Salem Stanford, 33939.
3. Jas. Leask, Greenbank, Moneyfuffel Fortune; sire, Knight Errant, 34309; dam, Fickle Fortune, 31179.
4. Goodfellow Bros., Macville, Pansy Ray 2nd, Vol. XX; sire, Jas. Stamford Watt, 34687; dam, Pansy Ray, 29822.
5. J. Fried & Sons, Roseville, Oxford Lady; sire, Kinellar Stamp, 28867; dam, Golden Drop, 32054.

Best Shorthorn Steer. Seven entries.

1. J. Fried & Sons, Roseville.

Herefords or Polled Angus.

Steer or Heifer, 2 yrs. and under 3. Two entries.

1. F. W. Stone Stock Co., Guelph, Sweetheart 34th, 121507; sire, Baronet, 100989; dam, Sweetheart 33rd, 100988.
2. Jas. Sharp, Rockside, Rufus of Tweedhill, 1226; sire, Evelyn of W. G., 20984; dam, Ajah of Tweedhill, 36458.

Steer or Heifer, 1 yr. and under 2. Three entries.

1. F. W. Stone Stock Co., Guelph, Sweet Bar; sire, Baronet, 100989; dam, Sweetheart 33rd, 100988.
2. Jas. Bowman, Guelph, Elm Park Belle, 5th; sire, Kymas Heir, 24830; dam, Heather Belle, 22610.
3. F. W. Stone Stock Co., Guelph, Hazel Bar; sire, Baronet, 100989; dam, Hazel Duchess 9th, 95237.

Steer or Heifer under 1 yr. Three entries.

1. F. W. Stone Stock Co., Guelph, Peach Stone C.; sire, Stone's Clarence 2nd, 109049; dam, Peach 34th, 95240.

2. Jas. Bowman, Guelph, Elm Park Kyma 14th; sire, Oxford King 24359; dam, Elm Park Kyma 6th, 28962.
3. Geo. Davis, Alton, Queen Easter of Glengore 2nd; sire, Robin of Tweedhill, 46196; dam, Brunette S., 14408.

Cow or Heifer, 3 yrs. and over. Three entries.

1. Jas. Bowman, Guelph, Elm Park Kyma 10th; sire, Evelyn of W. G., 20984; dam, Elm Park Kyma 4th, 24534.
2. F. W. Stone Stock Co., Guelph, Peach 34th; sire, Barbette, 68977; dam, Peach 28th, 63844.
3. F. W. Stone Stock Co., Guelph, Peach 36th; sire, Lord of Ingleside 4th, 83599; dam, Peach 28th, 63844.

Aberdeen Angus.

Steer or Heifer, 2 yrs. and under 3. One entry.

1. Jas. Sharp, Rockside, Rufus of Tweedhill.

Steer or Heifer, 3 yrs. and over. One entry.

1. Jas. Bowman, Guelph.

Galloway or Devon.

Steer or Heifer, 2 yrs. and under 3. Two entries.

1. W. J. Rudd, Eden Mills, Jack; sire, Hero R., 1049; dam, Ella, 1128.
2. D. McCrae, Guelph, Lismore Lady, 18491; sire, Gladstone Boy, 13879; dam, Lismore Lila, 12972.

Steer or Heifer, 1 yr. and under 2. Three entries.

1. D. McCrae, Guelph, Fairy Rose; sire, Fashoda, 14390; dam, Black Rose, 12118.
2. D. McCrae, Guelph, Maid of the Mist; sire, Lord Wadholme, 15700; dam, Maid Marjorie, 13977.
3. W. J. Rudd, Eden Mills,, Harry; sire, Conqueror, 1053; dam, Flora, 1087.

Steer or Heifer, under 1 yr. Four entries.

1. W. J. Rudd, Eden Mills, Peter; sire, Welsh Pete, 7349; dam, Ella, 1128.
2. D. McCrae, Guelph, Belle of Guelph, 23059; sire, Cedric 4th, 6466; dam, Belle 12th, 19064.
3. W. J. Rudd, Eden Mills, Charlie; sire, Welsh Pete, 7349; dam, Florry, 1177.
4. D. McCrae, Guelph, Beauty of Guelph; sire, Cedric 4th; dam, Beauty of St. John 2nd, 12458.

Cow or Heifer, 3 yrs. and over. Two entries.

1. D. McCrae, Guelph, Grizel 2nd of Lochenkit; sire, Queen's Messenger II, 7061; dam, Grizel 4th, 14418.
2. W. J. Rudd, Eden Mills, College Ida, 1144; sire, Tom, 1031; dam, Effie 2nd, 1039.

Grades.

Steer, 2 yrs. and under 3. Nineteen entries.

1. Jas. Wilson & Son, Fergus, Prince; sire, Imperial, 29175.
2. And. Richardson, Peepabun, Scotty; sire, Lord Stanley 5th 23376.
3. Jas. Leask, Greenbank, Royal Silver; sire, Royal Banner, 27652.
4. J. Fried & Son, Roseville, Victor; sire, Kinellar Stamp, 28867.
5. Jno. Dickieson, Eramosa, Stanley; sire, Stanley, 27764.

Steer, 1 yr. and under 2. Sixteen entries.

1. Jas. Leask, Greenbank, Champion Knight; sire, Knight Errant, 34309.
2. John Brown & Sons, Galt, Hillsburg Lad 2nd; sire, Hillsburg Lad, 26757.
3. Jas. Leask, Greenbank, Spotted Knight; sire, Knight Errant, 34309.
4. And. Richardson, Peepabun, Clinker; sire, Lord Stanley 5th, 23376.
5. John Dickieson, Eramosa, Roger; sire, Stanley, 27764.

Steer, under 1 yr. Ten entries.

1. D. A. Graham, Ivan, Freddie B.; sire, Crown Jewel, 34606.
2. D. Stewart, Everton, Edward; sire, Silver Star 2nd, 40428.
3. Jas. Leask, Greenbank, Watson; sire, Moneyfuffel Banner, 38736.

4. Jno. Dickieson, Eramosa, Percy; sire, Silver Star 2nd, 40428.
5. Alf. Hales, Guelph, Black Prince; sire, Elm Park Prince, 35770.

Cow or Heifer, 3 yrs. or over. Seven entries.

1. Jno. Brown & Sons, Galt, Nellie Rose.
2. E. B. Kolb, Berlin, ; sire, Berlin Lad, 35008.
3. A. Hales, Guelph, Flora; sire, King William, 17240.
4. Arch. Stewart, Ailsa Craig, Daisy.
5. D. Macarthur, Ailsa Craig, Topsy.

Heifer, 2 yrs. and under 3. Eleven entries.

1. Jas. Leask, Greenbank, White Lily; sire, Royal Banner, 27652.
2. D. Stewart, Everton, Daisy; sire, Stanley, 27764.
3. J. Fried & Sons, Roseville, Miss London; sire, Kinellar Stamp, 28867.
4. R. Young & Sons, Ospringe, Erin Beauty; sire, Valesco.
5. Peter Stewart, Everton, Lady Elmira; sire, Elmira Chief, 22535.

Heifer, under 2 yrs. Ten entries.

1. Peter Stewart, Everton, Lady Royal; sire, Royal McGregor, 29026.
2. A. McDougall, Guelph, ; sire, Elm Park Laird, 38840.
3. Robt. Dawson, Guelph, Tansy; sire, Col. Bruce, 29548.
4. R. Young & Sons, Ospringe, Roan Bess; sire, Valesco.
5. J. Brown & Sons, Galt, Daisy.

DRESSED CARCASSES, PURE BRED. NINE ENTRIES.

1. W. J. Rudd, Eden Mills.
2. E. Brien & Sons, Ridgetown.
3. Jas. Sharp, Rockside, Rufus of Tweedhill.
4. Jas. Bowman, Guelph.
5. J. Fried & Sons, Roseville, Barney B.
6. J. Brown & Sons, Galt, Neva.

Dressed Carcasses, Grade or Cross. Nineteen entries.

1. A. McDougall, Guelph.
2. M. Wolfe, Hespeler.
3. A. Hales, Guelph, Jim.
4. G. B. Hood, Guelph, Billy.

Best Dressed Carcass. Nine entries.

1. A. Hales, Guelph, Jim.

Grade Steer or Heifer, sired by Aberdeen Angus Bull. Seven entries.

1. A. McDougall, Guelph.
2. John Brown & Sons, Galt.
3. Jas. Wilson & Sons, Fergus, Jim.
4. Jas. Wilson & Sons, Fergus, Tom.
5. Jas. Wilson & Sons, Fergus, Darkey Boy.

Best Steer or Heifer by Hereford Bull. Three entries.

1. F. W. Stone Stock Co., Guelph.
2. John Brown & Sons, Galt, Herb; sire, Lord Aberdeen, 840.
3. W. J. Fasken, Ponsonby.

Best Grade Steer or Heifer, fed in Wellington Co. Twenty-one entries.

1. J. Wilson & Sons, Fergus, Prince.

Best Grade Steer, by Shorthorn Bull. Thirty-one entries.

1. Jas. Wilson & Sons, Fergus.
2. Andrew Richardson, Peepabun, Scotty.
3. Jas. Leask, Greenbank, Royal Silver.
4. Jas. Leask, Greenbank, Champion Knight.

Best Three Export Steers. Twelve entries.

1. John Brown & Sons, Galt.
2. J. Wilson & Sons, Fergus.
3. John Brown & Sons, Galt.
4. A. Hales, Guelph.
5. W. H. Reid, Kingston.

Best Pair Fat Cattle, fed with Worthington's Stock Tonic. Twenty-seven entries.

1. Jas. Leask, Greenbank, Royal Silver and White Lily.
2. Andrew Richardson, Peepabun, Scotty and Clinker.

Best Pair Fat Animals. Twenty-two entries.

1. Jas. Leask, Greenbank.

DAIRY TEST, PROVINCIAL WINTER FAIR, GUELPH, 1903.

Class 43. Section 1, Shorthorn Cow, 36 months and over.

Name.	Owner.	Lbs. milk.	Per cent. fat.	Lbs. fat.	Lbs. solids not fat.	Points for day milk.	Points for fat.	Points for solids not fat.	Total points.	Remarks.
Kentucky Queen	Jas. Brown, Norval	101.81	4.1	4.17	10.39	0	83.4	41.56	124.96	1st
Bonnie Doon	L. D. Currie, Hillsburg	99.76	3.6	3.5	9.36	1	71.6	37.44	110.04	2nd
Beauty of Woodside	H. J. Davis, Woodstock	98.25	3.5	3.43	8.70	2.3	68.6	35.04	105.94	3rd
Bertha B	H. C. Graham, Ailsa Craig	78.50	3.7	2.90	7.60	0	58.0	30.4	88.4	4th
Bellevedere Lily	H. C. Graham, Ailsa Craig	71.75	3.5	2.60	7.04	1.2	52.	28.16	81.36	5th
Countess	J. Fried & Son, Roseville	58.51	3.4	1.985	5.71	2.4	39.66	22.84	64.9	6th

Class 43, Section 2, Shorthorn Cow, under 36 months.

Kentucky Rose	Jas. Brown, Norval	[illegible]	4.1	2.8	6.69	0	56.2	26.76	82.96	1st
May Darlington	H. C. Graham, Ailsa Craig	49.19	4.	1.98	4.83	3.2	39.6	19.32	62.12	2nd
Queen Violet	L. D. Currie, Hillsburg	54.31	3.25	1.771	5.04	2.7	35.42	20.16	58.28	3rd

Class 44, Section 1, Ayrshire Cow, 36 months and over.

Sarah 2nd	H. & J. McKee, Norwich	124.37	4.	4.95	12.01	0	99.	48.02	147.02	1st
Polly Woodroofe	J. G. Clark, Ottawa	113.29	3.6	4.07	10.84	.7	81.4	43.36	125.46	2nd
Annette	W. M. Smith, Scotland	83.25	4.35	3.62	8.23	2.3	72.4	32.9	107.62	3rd
Barton Princess	N. Dyment, Clappinson	61.58	4.	2.46	5.82	6.9	49.2	23.28	79.38	4th

Class 44, Section 2, Ayrshire Cow, under 36 months.

Duchess Addington	J. G. Clark, Ottawa	90.31	4.3	3.88	8.52	0	77.6	34.08	111.68	1st
Scotland Jean	W. M. Smith, Scotland	79.57	4.6	3.65	8.05	0	73.	32.2	105.2	2nd
Woodroofe Princess	J. G. Clark, Ottawa	83.48	3.65	3.04	6.4	1.1	60.8	31.6	93.5	3rd
Dandy 1st of Brookside	H. & J. McKee, Norwich	77.85	4.	3.12	7.37	.1	62.2	29.48	91.78	4th
Duchess	W. M. Smith, Scotland	57.32	4.	2.292	6.65	0	45.84	21.41	67.24	5th
Myrnie of Hickory Hall	N. Dyment, Clappinson	56.53	3.75	2.146	5.54	0	42.9	22.16	65.06	6th
Princess	W. M. Smith, Scotland	48.87	4.2	2.041	4.91	3.1	40.8	18.88	62.78	7th

Class 45, Section 1, Holstein Cow, 36 months and over.

Mercena 3rd	Jas. Rettie, Norwich	116.21	4.25	4.92	11.03	0	98.4	44.12	142.52	1st
Iantha Jewel Mechthilde	Jas. Rettie, Norwich	118.58	3.65	4.31	10.95	0	86.2	44.8	130	2nd
Madonna Clothilde	G. Rice, Currie's Crossing	121.76	3.4	4.19	11.21	0	83.8	44.84	128.64	3rd
Annie Schuiling	J. Rettie, Norwich	108.8	3.95	4.3	10.32	0	86.	41.28	127.28	4th

Class 45, Section 2, Holstein Cow, under 36 months.

Mercena 4th	James Rettie, Norwich	100.82	3.05	3.07	8.46	0	60.6	33.76	94.36	1st
Lady Frances	P. D. Ede, Oxford Centre	95.25	3.	2.85	8.38	1.1	57.	33.48	91.58	2nd
Belle Dewdrop	G. Rice, Currie's Crossing	85.63	3.5	2.98	7.9	0	59.6	32.20	91.8	3rd
Calamity Jane, Duchess 2nd	Geo. Rice, Currie's Crossing	72.45	3.3	2.38	7.18	0	47.6	28.72	76.32	4th
Josie of Aaggie, Becoundi	" "	76.25	3.2	2.43	6.88	0	48.6	27.52	76.12	5th

Class 48, Section 1, Grade Cow, 36 months and over.

Pearl	P. D. Ede, Oxford Centre	106.88	4.4	4.68	9.25	.4	93.6	37.	131.	1st
Utopia	A. McDougall, Guelph	107.01	4.2	4.49	10.06	0	89.8	40.24	130.04	2nd
Ruby	P. D. Ede, Oxford Centre	103.27	3.35	3.45	9.42	.8	69.	36.78	106.58	3rd
Mary	A. McDougall, Guelph	85.58	3.55	3.02	8.06	0	60.4	32.24	92.64	4th

Class 48, Section 2, Grade under 36 months.

Violet	A. McDougall, Guelph	93.15	4.05	3.76	9.17	0	75.2	36.68	111.88	1st
Jewell 2nd	P. D. Ede, Oxford Centre	72.19	3.55	2.56	6.8	1.5	51.2	27.2	79.9	2nd

SHEEP.

Cotswold.

Ewe, under 1 yr. Fourteen entries.

1. Snell & Lyons, Snelgrove, Snelgrove Gem, 29743; sire, Garnes 346, 19038; dam, Garnes 213, 24843.
2. Jas. Hume, Arkell, Rawlings 69, 29276; sire, R. P. Snell's 186, 19787; dam, Rawlings 374, 15313.
3. Jas. Hume, Arkell, Rawlings 798, 29289; sire, R. P. Snell's 186, 19787; dam, Blundem 10, 16582.
4. Jno. Rawlings, Ravenswood, Baileys 194, 29319; sire, Trump; dam, Garbutt's 315, 16119.
5. N. Park, Norwich, Lady Jane, 29407; sire, Swannicks 78, 21920; dam, Park Ewe, 21572.

Wether, 1 yr. and under 2. Seven entries.

1. E. Brien & Sons, Ridgetown, Briens 54; sire, Joe; dam, Briens 36.
2. John Rawlings, Ravenswood, Rawlings 688; sire, Trump, 16181; dam, Ficht 151, 19531.
3. John Rawlings, Ravenswood, Rawlings 661; sire, Trump, 16181; dam, Rawlings 371, 15310.
4. G. & B. Laird, Guelph, Lairds 203; sire, Ruch, 13734; dam, Laird's 138, 24644.
5. N. Park, Norwich, Johnny; sire, Lord Minto, 21937; dam, Ficht 171, 19552.

Wether, under 1 yr. Twelve entries.

1. Snell & Lyons, Snelgrove, Snelgrove Hero; sire, Sanderson King, 29588; dam, Snell's 437, 18077.
2. N. Park, Norwich, Victor; sire, Curly Tom, 25052; dam, Park Ewe 79, 21586.
3. E. Brien & Sons, Ridgetown, Brien's 57; sire, Joe, 19668; dam, Brien's 12, 22254.
4. W. E. Wright, Glanworth, Laidlaw's 419; sire, Crown Prince, 19293; dam, Laidlaw's 351, 18326.
5. N. Park, Norwich, Bobs; sire, Lord Minto, 21937; dam, Fitch 171, 19552.

Three Wethers, under 1 yr. Four entries.

1. Snell & Lyons, Snelgrove.
2. N. Park, Norwich.
3. E. Brien & Sons, Ridgetown.
4. W. E. Wright, Glanworth.

Three Ewes, under 1 yr. Five entries.

1. Snell & Lyons, Snelgrove.
2. Jas. Hume, Arkell.
3. John Rawlings, Ravenswood.
4. N. Park, Norwich.
5. H. McNelly, Arkell.

Dressed Carcass Wether, 1 yr. and under 2. Seven entries.

1. E. Brien & Sons, Ridgetown.
2. E. Brien & Sons, Ridgetown.
3. G. & B. Laird, Guelph.

Dressed Carcass Wether, under 1 yr. Seven entries.

1. E. Brien & Sons, Ridgetown.
2. Snell & Lyons, Snelgrove.
3. G. & B. Laird, Guelph.

Lincolns.

Ewe, under 1 yr. Eight entries.

1. E. & L. Parkinson, Eramosa, Parkinson's 451; Duddings, 326; dam, Eunice 11th, 9353.
2. J. T. Gibson, Denfield, Gibson's 194, 11238.
3. E. & L. Parkinson, Eramosa, Parkinson's 450; sire, Duddings 326, 11153; dam, Clemintina, 9363.
4. J. T. Gibson, Denfield, Gibson's 199, 11612.
5. J. T. Gibson, Denfield, Gibson's 197, 11610.

Wether, 1 yr. and under 2. Four entries.

1. J. T. Gibson, Denfield, Gibson's 179; sire, Deans 9, 9300; dam, Sally S., 3907.
2. J. T. Gibson, Denfield, Gibson's 180; Deans 9, 9300; dam, G. & W. 77, 3334.
3. E. & L. Parkinson, Eramosa, Dick; sire, Electo, 7908; dam, Hanna 3rd, 4354.
4. E. & L. Parkinson, Eramosa, Tom; sire, Electo, 7908; dam, Ann 5th, 4357.

Wether, under 1 yr. Four entries.

1. J. T. Gibson, Denfield, Gibson's 202, 11615; sire, Duddings 333, 10936; dam, Gibson's
2. J. T. Gibson, Denfield, Gibson's 201, 11614; sire, Duddings 333, 10936 · dam, Gibson's 103, 9977.
3. J. T. Gibson, Denfield, Gibson's 204, 11617; sire, Caswell 55, 10904; dam, Ruby, 4877. 103, 9977.
4. E. & L. Parkinson, Eramosa, Jo.; sire, Ruby VI, 4398; dam, Edith 3rd, 6659.

Three Wethers, under 1 yr. Two entries.

1. J. T. Gibson, Denfield.
2. E. & L. Parkinson, Eramosa.

Three Ewes, under 1 yr. Four entries.

1. E. & L. Parkinson, Eramosa, Parkinson's 450, 451, 452.
2. J. T. Gibson, Denfield.
3. J. T. Gibson, Denfield.
4. F. Martindale & Son, York, G. Walker's 886, 884, 879.

Dressed Carcass Wether, 1 yr. and under 2. Two entries.

1. J. T. Gibson, Denfield.
2. E. & L. Parkinson, Eramosa, Dick.

Dressed Carcass Wether, under 1 yr. Two entries.

1. J. T. Gibson, Denfield.
2. E. & L. Parkinson, Eramosa.

LEICESTERS.

Ewe, under 1 yr. Nine entries.

1. John Kelly, Shakespeare, 6682.
2. John Kelly, Shakespeare, 6677.
3. John Orr, Galt, Topsy, 7064; sire, Salem Boy, 1793; dam, Nettie, 1560.
4. Hastings Bros., Crosshill, Miss Charming; sire, Gold Dust, 5041; dam Maggie Wisher, 5042.
5. D. H. Taylor, Corwhin.

Wether, 1 yr. and under 2. Six entries.

1. John Kelly, Shakespeare, 6269.
2. John Orr, Galt, Sambo, 6018; sire, Albino, 4077; dam, Sousa's Lass, 3140.
3. John Orr, Galt, Tom, 6053; sire, Lord Roberts, 4885; dam, Polly, 2751.
4. Hastings Bros., Crosshill, Farmers' Pride, R. 106, 3443; dam, Show Girl, 3493.
5. John Orr, Galt, Jim, 6052; sire, Lord Roberts, 4885; dam, Polly, 2571.

Wether, under 1 yr. Eleven entries.

1. John Kelly, Shakespeare, Tom.
2. John Orr, Galt, Captain, 7064; sire, Salem Boy 1793; dam, May, 1507.
3. John Orr, Galt, Rex, 7062; sire, Salem Boy, 1793; dam, Jean, 1506.
4. Hastings Bros., Crosshill, Francis; sire, Big Bob, 5738; dam, Show Girl, 3493.
5. John Kelly, Shakespeare, Willie Wisp.

Three Wethers, under 1 yr. Four entries.

1. John Kelly, Shakespeare.
2. John Orr, Galt.
3. Hastings Bros., Crosshill.

Three Ewes, under 1 yr. Five entries.

1. John Kelly, Shakespeare.
2. John Orr, Galt.
3. Hastings Bros., Crossshill.
4. D. H. Taylor, Corwhin.
5. John Hoggard & Son, Ranelagh.

Dressed Carcass Wether, 1 yr. and under 2. Four entries.

1. Hastings Bros., Crossshill.
2. John Orr, Galt.
3. Hastings Bros., Crosshill.

Dressed Carcass Wether, under 1 yr. Three entries.

1. Hastings Bros., Crosshill.
2. John Orr, Galt.
3. Hastings Bros., Crosshill.

Oxfords.

Ewe, under 1 yr. Nine entries.

1. J. W. Lee, Simcoe, Helbon Pink 4, 21827; sire, Langlie's Brant King, 17512; dam, Helbon Pink, 21827.
2. Robt. J. Hine, Dutton, Hine's 332 of 1903, 31024; sire, Glengarry's Earl, 27220; dam, Linden's Rose 2nd. 13043.
3. Robt. J. Hine, Dutton, Hine's 305 of 1903, 29048; sire, Linden, 27001; dam, Linden Jess 4th, 20427.
4. Robt. J. Hine, Dutton, Hine's 253 of 1903, 29045; sire, Linden, 27001; dam, Linden's Lal 4th, 20430.
5. Robt. J. Hine, Dutton, Hine's 250 of 1903, 29047; sire, Linden's Champion 3rd, 17018; dam, Kempsford Heroine, 16446.

Wether, 1 yr. and under 2. Five entries.

1. J. H. Jull & Sons, Burford, Brant Boy 100; sire, Hampton Hero, 21815; dam, Brant Queen 232, 20781.
2. W. E. Wright, Glanworth, Evan's 405; sire, Evan's 357, 18403; dam, Mapleton Belle 118, 12448.
3. J. H. Jull & Sons, Burford, Brant Boy 95; sire, Hampton Hero, 21815; dam, Brant Queen 157, 18431.
4. W. E. Wright, Glanworth, ; sire, Brant Chief 263, 20786; dam, Pond Mills 32, 14885.
5. J. H. Jull & Sons, Burford, Brant Boy 103; sire, Hampton Hero, 21815; dam, Brant Queen 174, 18435.

Wether, under 1 yr. Five entries.

1. W. E. Wright, Glanworth, A. E. 165, 30126.
2. R. J. Hine, Dutton, Hine's 254, 29038.
3. W. E. Wright, Glanworth, A. E. 171, 30128.
4. W. E. Wright, Glanworth, A. E. 175, 30127.
5. J. H. Jull & Son, Burford, Brant Boy 452; sire, Hampton Hero, 21815; dam, Brant Queen 200, 18444.

Three Wethers, under 1 yr. One entry.

1. W. E. Wright, Glanworth, A. E. 165, 171, 175.

Three Ewes, under 1yr. Three entries.

1. J. W. Lee, Simcoe.
2. R. J. Hine, Dutton.
3. R. J. Hine, Dutton.

Dressed Carcass Wether, 1 yr. and under 2. Three entries.

1. J. H. Jull & Son, Burford.
2. W. E. Wright, Glanworth.
3. W. E. Wright, Glanworth.

Dressed Carcass Wether, under 1 yr. Four entries.

1. W. E. Wright, Glanworth.
2. W. E. Wright, Glanworth.
3. J. H. Jull & Sons, Burford.
4. R. J. Hine, Dutton.

Shropshires.

Ewe, under 1 yr. Five entries.

1. John Campbell, Woodville, Campbell's 1210, 191365.
2. John Campbell, Woodville, Campbell's 1214, 191362.
3. John Campbell, Woodville, Campbell's 1233, 194037.
4. A. Rudell, Hespeler, A. Rudell's 273, 192231.

Wether, 1 yr. and under 2. Six entries.

1. John Campbell, Woodville, No. 6, 180145.
2. R. Gibson, Delaware, M. P., 194051; sire, Allan Star, 114800; dam, Gibson's 429, 95983.
3. John Campbell, Woodville, No. 2, 180141.
3. W. E. Wright, Glanworth, Wright's 425, 171518; sire, McFarlane's 603, 163403; dam, Wright's 352, 144084.
5. A. Rudell, Hespeler, A. Rudell 231, 180526; sire, T. L. Jones' 406, 135550; dam, Rudell's 132, 111980.

Wether, under 1 yr. Eight entries.

1. John Campbell, Woodville, Ideal, 193953.
2. John Campbell, Woodville, Idler 193954.
3. John Campbell, Woodville, McHayne's 32, 192197.
4. A. Rudell, Hespeler, A. Rudell's 301; sire, Hanmer's 1418, 160852; dam, Rudell's 151, 130383.

Three Wethers, under 1 yr. Three entries.

1. John Campbell, Woodville.
2. W. E. Wright, Glanworth, Wright's 446, 452, and 467.

Three Ewes, under 1 yr. One entry.

1. John Campbell, Woodville.

Dressed Carcass Wether, 1 yr. and under 2. Four entries.

1. W. E. Wright, Glanworth.
2. John Campbell, Woodviile.
3. A. Rudell, Hespeler.
4. R. Gibson, Delaware.

Dressed Carcass Wether, under 1 yr. Four entries.

1. A. Rudell, Hespeler.
2. W. E. Wright, Glanworth.

SOUTHDOWNS.

Ewe, under 1 yr. Eleven entries.

1. John Jackson & Son, Abingdon, Jackson Ewe 46 C.; sire, Babron Yorker, 14783; dam, Jackson's 92 A.
2. Hon. G. A. Drummond, Pointe Claire, Que., 737, 17479.
3. John Jackson & Son, Abingdon, Jackson Ewe 41 C.; sire, Babron Yorker, 14783; dam, Stella, 12445.
4. John Jackson & Son, Abingdon, Jackson Ewe 44 C.; sire, Babron Yorker, 14783; dam, Jackson's 79 B., 12209.
5. Hon. G. A. Drummond, Pointe Claire, Que., 732, 17478.

Wether, 1 yr. and under 2. Ten entries.

1. Hon. G. A. Drummond, Pointe Claire, Que.
2. Hon. G. A. Drummond, Pointe Claire, Que.
3. Telfer Bros., Paris, Telfer Wether 7; sire, Telfer 25, 13788; dam, Telfer 51, 9458.
4. R. J. Douglas, Galt, Billy; sire, Lord Roberts, 13823; dam, Douglas Ewe 118, 12331.
5. Hon. G. A. Drummond, Pointe Claire, Que.

Wether, under 1 yr. Thirteen entries.

1. John Jackson & Son, Abingdon, Jackson 47; sire, Jackson 61, 14337; dam, Jackson 108 B., 14346.
2. Hon. G. A. Drummond, Pointe Claire, Que.
3. Hon. G. A. Drummond, Pointe Claire, Que.
4. Hon. G. A. Drummond, Pointe Claire, Que.
5. Telfer Bros., Paris, Jock; sire, Telfer 9, 11043; dam, Melhoide, 14650.

Three Wethers, under 1 yr. Six entries.

1. Hon. G. A. Drummond, Pointe Claire, Que.
2. John Jackson & Son, Abingdon, 26, 47, and 40.
3. Telfer Bros., Paris, Jock, Bob and Tom.
4. R. J. Douglas, Galt.
5. Hon. G. A. Drummond, Pointe Claire, Que.

Three Ewes, under 1 yr. Four entries.

1. John Jackson & Son, Abingdon, Jackson's 46 C, 41 C, and 44 C.
2. Hon. G. A. Drummond, Pointe Claire, Que.
3. Telfer Bros., Paris, Telfer Ewe 130, 127 and 132.
4. R. J. Douglas, Galt.

Dressed Carcass Wether, 1 yr and under 2. Five entries.

1. R. J. Douglas, Galt.
2. Telfer Bros., Paris.
3. Jas. Scott, Aberfoyle.

Dressed Carcass Wether, under 1 yr. Five entries.

1. R. J. Douglas, Galt.
2. John Jackson & Son, Abingdon.
3. R. J. Douglas, Galt.

Dorset Horns or Merinos.

Ewe, under 1 yr. Ten entries.

1. J. Walter Wood, Jr., Gananoque, Tranquility 1182, 3120; sire, Tranquility, 9731; dam, Tranquility 757.
2. R. H Harding, Thorndale, Lottie 2nd, 3258.
3. R. H. Harding, Thorndale, Nancy Lee, 3255.
4. R. H. Harding, Thorndale, Lottie, 3237.
5. J. Walter Wood, Jr., Gananoque, Tranquility 1185, 3123; sire, Tranquility, 9731; dam, Tranquility 757.

Wether, 1 yr. and under 2. Four entries.

1. John Hunter, Wyoming, Sullivan; sire, Rob Roy 1260; dam, Pinkie, 1152.
2. R. H. Harding, Thorndale.
3. John Hunter, Wyoming, Gamey; sire, Rob Roy, 1260; dam, Pinkie, 1152.

Wether, under 1 yr. Eight entries.

1. R. H. Harding, Thorndale, Tom, 3358; sire, Harding's 2378.
2. R. H. Harding, Thorndale, Bruce, 3359; sire, Tranquility, 1406.
3. John Hunter, Wyoming, Peter; sire, Rob Rob, 1260; dam, Agnes, 739.
4. John Hunter, Wyoming, Max.; sire, Push, 2474; dam, Dame Durdan, 1155.
5. A. G. H. Luxton, Milton, Model; sire, Billy Baker, 744; dam, Bowman's 20, 723.

Dressed Carcass Wether, 1 yr. and under 2. Four entries.

1. R. H. Harding, Thorndale.
2. John Hunter, Wyoming, Sullivan.
3. John Hunter, Wyoming, Gamey.

Dressed Carcass Wether, under 1 yr. Six entries.

1. A. G. H. Luxton, Milton.
2. R. H. Harding, Thorndale.
3. John Hunter, Wyoming.
4. John Hunter, Wyoming.

Hampshire or Suffolks.

Ewe, under 1yr. Four entries.

1. John Kelly, Shakespeare.
2. Telfer Bros., Paris.
3. Jas. Bowman, Guelph.
4. John Kelly, Shakespeare.

Wether, 1 yr. and under 2. Three entries.

1. John Kelly, Shakespeare, 3556.
2. Telfer Bros., Paris, Telfer Wether 1, 3589; sire, 2924; dam, 7176.
3. Jas. Bowman, Guelph, Bowmans.

Wether, under 1 yr. Five entries.

1. Jas. Bowman, Guelph, Bowman's 46; sire, Bismarck of Stretchworth, 641; dam, Bowman's 563.
2. Telfer Bros., Paris, Telfer 2; sire, 2669; dam, 7173.
3. Telfer Bros., Paris, Telfer 3; sire, 2669; dam, 7173.
4. Jas. Bowman, Guelph, Bowman's 82; sire, Bismarck of Stretchworth, 622; dam, Bowman's 318.

Dressed Carcass Wether, 1 yr. and under 2. Three entries.

1. Telfer Bros., Paris.
2. Jas. Bowman, Guelph.
3. John Kelly, Shakespeare.

Dressed Carcass Wether, under 1 yr. Two entries.

1 Jas. Bowman, Guelph.
2. Jas. Bowman, Guelph.

Registered Shropshire.

Wether, 1 yr. and under 2. Seven entries.

1. John Campbell, Woodville.
2. R. Gibson, Delaware.
3. John Campbell, Woodville.

Wether, under 1 yr. Nine entries.

1. John Campbell, Woodville.
2. John Campbell, Woodville.
3. John Campbell, Woodville.

Three Wether Lambs. Three entries.

1. John Campbell, Woodville.
2. W. E. Wright, Glanworth.

Best Grade Wether, 1 yr. Seven entries.

1. John Campbell, Woodville.
2. A. Rudell, Hespeler.
3. A. Rudell, Hespeler.

Best Grade Wether Lamb. Seven entries.

1. John Campbell, Woodville.
2. John Campbell, Woodville.
3. John Campbell, Woodville.

SOUTHDOWN SPECIALS.

(Prizes offered by the American Southdown Breeders' Association.)

Ewe, under 1 yr. Eleven entries.

1. John Jackson, Abingdon.
2. G. A. Drummond, Pointe Claire, Que.
3. John Jackson, Abingdon.

Pen of Three Ewes, under 1 yr. Four entries.

1. John Jackson, Abingdon.
2. G. A. Drummond, Pointe Claire, Que.
3. Telfer Bros., Paris.

Pen of Three Ewe Lambs, under 1 yr. Four entries.

1. John Jackson, Abingdon.
2. G. A. Drummond, Pointe Claire, Que.
3. Telfer Bros., Paris.

Wether, 1 yr. and under 2. Ten entries.

1. G. A. Drummond, Pointe Claire, Que.
2. G. A. Drummond, Pointe Claire, Que.
3. Telfer Bros., Paris.

Wether, under 1 yr. Ten entries.

1. John Jackson & Son, Abingdon.
2. G. A. Drummond, Pointe Claire, Que.
3. G. A. Drummond, Pointe Claire, Que.

Pen Three Southdown Wethers, under 1 yr. Six entries.

1. G. A. Drummond, Pointe Claire, Que.
2. John Jackson & Son, Abingdon.
3. Telfer Bros., Paris.

OXFORDS. SPECIALS.

(Prizes offered by the American Oxford Record Association.)

Yearling Wether. Four entries.

1. J. H. Jull & Son, Burford.
2. W. E. Wright, Glanworth.
3. J. H. Jull & Son, Burford.

Lamb Wether. Five entries

1. W. E. Wright, Glanworth.
2. R. J. Hine, Dutton.
3. W. E. Wright, Glanworth.
4. W. E. Wright, Glanworth.
5. J. H. Jull & Son, Burford.

Ewe Lamb. Five entries.

1. J. W. Lee, Simcoe.
2. R. J. Hine, Dutton.
3. R. J. Hine, Dutton.

Pen Three Wether Lambs. One entry.

1. W. E. Wright, Glanworth.

Pen Three Ewe Lambs. Three entries.

1. J. W. Lee, Simcoe.
2. R. J. Hine, Dutton.
3. R. J. Hine, Dutton.

Lamb Wether Carcass. Three entries.

1. W. E. Wright, Glanworth.
2. W. E. Wright, Glanworth.
3. J. H. Jull & Son, Burford
4. R. J. Hine, Dutton.

Yearling Wether Carcass. Three entries.

1. J. H. Jull & Son, Burford.
2. W. E. Wright, Glanworth.
3. W. E. Wright, Glanworth.

Lamb Wether Carcass. Three entries.

1. W. E. Wright, Glanworth.
2. W. E. Wright, Glanworth.
3. J. H. Jull & Son, Burford.

GRADES.

Grade Ewe, 1 yr. and under 2. Five entries.

1. John Campbell, Woodville.
2. E. Brien & Sons, Ridgetown.
3. J. T. Gibson, Denfield.
4. Hastings Bros., Crosshill.
5. John Campbell, Woodville.

Grade Wether, 1 yr. and under 2. Eighteen entries.

1. John Kelly, Shakespeare.
2. J. T. Gibson, Denfield.
3. John Campbell, Woodville.
4. A. Rudell, Hespeler.
5. J. Orr, Galt.

Three Grade Wethers, under 1 yr. Three entries.

1. John Campbell, Woodville.
2. J. Orr, Galt.

Grade Wether, under 1 yr. Fifteen entries.

1. J. T. Gibson, Denfield.
2. R. J. Douglas, Galt.
3. John Campbell, Woodville.
4. John Orr, Galt.
5. John Orr, Galt.

Grade Ewe, under 1 yr. Seven entries.

1. John Orr, Galt.
2. John Campbell, Woodville.
3. Hastings Bros., Crosshill.
4. A. Rudell, Hespeler.
5. E. Brien & Sons, Ridgetown.

Grade Ewe or Wether, under 2 yrs. Nine entries.

1. John Kelly, Shakespeare.
2. John Campbell, Woodville.
3. J. T. Gibson, Denfield.

Grade Wether, 1 yr. and under 2. Dressed Carcass. Ten entries.

1. R. J. Douglas, Galt.
2. A. Rudell, Hespeler.
3. R. Gibson, Delaware.
4. E. Brien & Sons, Ridgetown.

Dressed Carcass Grade Wether, under 1 yr. Six entries.

1. A. Rudell, Hespeler.
2. John Campbell, Woodville.
3. A. Rudell, Hespeler.
4. R. J. Douglas, Galt.

SWINE.

BERKSHIRES.

Barrow, 6 mos. and under 9. Six entries.

1. E. Brien & Sons, Ridgetown, Bobs; sire, Fashion's Hero, 6294; dam, Beauty, 8283.
2. E. Brien & Sons, Ridgetown, Bobs 2; sire, Fashion's Hero; dam, Beauty, 8283.
3. Wm. Wilson, Snelgrove, W. L. Eureta; sire, Longfellow 10th of H. F., 8633; dam, W. L. Allie, 9424.

Barrow, under 6 mos. Six entries.

1. Wm. Wilson, Snelgrove, W. L. Wave; sire, Highclere Crown 3rd, 9058; dam, W. L. Lizzie 2nd, 10835.
2. Snell & Lyons, Snelgrove, Snelgrove Sam; sire, Crown Prince, 5888; dam, Cherry Lane Queen, 10342.
3. W. J. Rudd, Eden Mills, Jim; sire, Brantford Charlie, 8900; dam, Rudd No. 3, 1788.

Sow, 9 mos. and under 15. Seven entries.

1. Snell & Lyons, Snelgrove, Snelgrove Dell, 12563; sire, Crown Prince, 5888; dam, Miss Prim, 8183.
2. Wm. Wilson, Snelgrove, W. L. Billie, 11944; sire, Longfellow 10th of H. F., 8633; dam, Belle of Milton, 5020.

3. Wm. Wilson, Snelgrove, W. L. Topsy, 11947; sire, Longfellow 10th of H. F., 8633; dam, W. L. Allie, 9424.

Sow, 6 mos. and under 9. Nine entries.

1. Snell & Lyons, Snelgrove, Snelgrove Hazel, 12566; sire, Crown Prince, 5888; dam, Miss Prim, 8183.
2. Wm. Wilson, Snelgrove, W. L. Nell, 11950; sire, Longfellow 10th of H. F., 8633; dam, W. L. Allie, 9424.
3. Wm. Wilson, Snelgrove, Cherry Lane Duchess, 11954; sire, Longfellow 10th of H. F., 8633; dam, W. L. Allie, 9424.

Sow, under 6 mos. Seven entries.

1. Snell & Lyons, Snelgrove, Snelgrove Edith, 12564; sire, Crown Prince, 5888; dam, Miss Prim, 10324.
2. Wm. Wilson, Snelgrove, W. L. Missie, 12511; sire, W. L. Perfection, 10357; dam, Princess Alice, 9447.
3. Wm. Wilson, Snelgrove, W. L. Amber, 12512; sire, W. L. Perfection, 10357; dam, Princess Alice, 9447.

Three Pigs, offspring of one sow. Five entries.

1. Wm. Wilson, Snelgrove.
2. Wm. Wilson, Snelgrove.
3. E. Brien & Sons, Ridgetown.

YORKSHIRES.

Barrow, 6 mos. and under 9. Eight entries.

1. R. F. Duck & Son, Pt. Credit, Jock; sire, Kitchener, 4158; dam, O. L. Cecelia, 4728.
2. J. E. Brethour, Burford, ; sire, O. L. Chancellor, 6582; dam, O. L. Pink 8th, 6021.
3. Jos. Featherston & Son, Streetsville, Rufford Swell; sire, P. G. Rufford Prince, 13221; dam, P. G. Fame, 11098.
4. R. F. Duck & Son, Pt. Credit, Bob; sire, Kitchener, 4158; dam,, O. L. Cecelia, 4728.
5. Jos. Featherstone & Son, Streetsville, Inwood Swell; sire, Pine Grove Inwood, 13758; dam, Pine Grove Ida 6th, 10409.

Barrow, under 6 mos. Eight entries.

1. J. Featherston & Son, Streetsville, Rufford Rex; sire, P. G. Inwood, 13753; dam, P. G. Trophy 2nd, 13754.
2. H. Dedells, Breslau, Tom; sire, Topsman, 9111; dam, Breslau Girl, 7359.
3. J. E. Brethour, Burford, ; sire, O. L. Friar, 7662; dam, O. L. Pride 70, 13678.
4. R. F. Duck & Son, Pt. Credit, Major; sire, Kitchener, 4658; dam, O. L. Mite 38th, 10449.
5. J. E. Brethour, Burford, ; sire, O. L. Friar, 7663; dam, O. L. Pride 70, 13678.

Sow, 9 mos. and under 15. Five entries.

1. R. F. Duck & Son, Pt. Credit, Lakeview Miss 2nd, 13059; sire, Prince Monarch 2nd, 6412; dam, Oak Lodge Cecelia, 4728.
2. H. J. Davis, Woodstock, Woodstock Lily 2nd, 13691; sire, Woodstock Royal Archer, 10116; dam, White Lily, 9665.
3. H. J. Davis, Woodstock, Woodstock Lily, 13690; sire, Woodstock Royal Archer, 10116; dam, White Lily, 9665.
4. H. Dedells, Breslau, Perfect, 13572; sire, Ruddington Lad, 3665; dam, Look-at-me, 4506.
5. J. Featherston & Son, Streetsville, Fame's Beauty, 13752; sire, Prince Monarch 10803; dam, P. G. Fame, 11098.

Sow, 6 mos. and under 9. Eleven entries.

1. J. E. Brethour, Burford, O. L. Cinderella, 140; sire, Legacy 2, 3669; dam, O. L. Cinderella 87, 9263.
2. J. Featherston & Son, Streetsville, P. G. Missabelle, 13756; sire, P. G. Rufford Prince, 13221; dam, P. G. Fame, 11098.
3. R. F. Duck & Son, Pt. Credit, Lakeview Nettie, 13596; sire, Kitchener, 4158; dam, Oak Lodge Cecelia, 4728.
4. J. E. Brethour, Burford, O. L. Cinderella 141; sire, O. L. Monarch, 7651; dam, O. L. Cinderella 137, 13557.
5. R. F. Duck & Son, Pt. Credit, Silverlocks 2nd, 13309; sire, Summerhill Slasher, 11975; dam, Dalmeny Duchess, 7062.

Sow, under 6 mos. Ten entries.

1. J. E. Brethour, Burford, Oak Lodge Pride 71, 13679; sire, Oak Lodge Friar, 7662; dam, Oak Lodge Pride 70, 13678.
2. J. E. Brethour, Burford, O. L. Pride 72, 13680; sire, O. L. Friar, 7662; dam, O. L. Pride 70, 13678.
3. R. F. Duck & Son, Pt. Credit, Lakeview Girl, 13615; sire, Kitchener, 4158; dam, Oak Lodge Mite 37, 10449.
4. R. F. Duck & Son, Pt. Credit, Lakeview Belle, 13597; sire, Summerhill Master, 4686; dam, Bacon Lass, 6926.
5. J. E. Brethour, Burford, O. L. Pride 73, 13681; sire, O. L. Friar, 7662; dam, O. L. Pride 70, 13678.

Three Yorkshires, offspring of one sow. Eight entries.

1. R. F. Duck & Son, Pt. Credit.
2. J. E. Brethour, Burford.
3. J. E. Brethour, Burford.

CHESTER WHITES.

Barrow, 6 mos. and under 9. Four entries.

1. D. DeCourcey, Bornholm, Tom; sire, Bornholm King, 2209; dam, Sussie 2nd, 2504.
2. D. DeCourcey, Bornholm, Tim; sire, Bornholm King, 2209; dam, Sussie 2nd, 2504.
3. R. H. Harding, Thorndale, Jack; sire, Thorndale Enterprise, 2484; dam, Lady Minto, 2150.
4. W. E. Wright, Glanworth, Jack; sire, Glanworth Prince, 1843; dam, Lily, 1372.

Barrow, under 6 mos. Three entries.

1. D. DeCourcey, Bornholm, Sam; sire, Conqueror, 2039; dam, Miss Buller, 1428.
2. W. E. Wright, Glanworth, Dandy; sire, Sunnyside Boy, 2561; dam, Clara, 1705.
3. D. DeCourcey, Bornholm, George; sire, Conqueror, 2039; dam, Miss Buller, 1428.

Sow, 9 mos. and under 15. Two entries.

1. W. E. Wright, Glanworth, Daisy, 2856; sire, Glanworth Prince, 1843; dam, Lily, 1372.
2. D. DeCourcey, Bornholm, Missie, 2502; sire, Conqueror, 2039; dam, Miss Buller, 1428.

Sow, 6 mos. and under 9. Five entries.

1. W. E. Wright, Glanworth, Fanny, 2857; sire, Glanworth Prince, 1843; dam, Lily, 1372.
2. W. E. Wright, Glanworth, Kate, 2858; sire, Glanworth Prince, 1843; dam, Lily, 1372.
3. D. DeCourcey, Bornholm, Miss Chester; sire, Bornholm King, 2209; dam, Sussie 2nd, 2504.
4. D. DeCourcey, Bornholm, Miss Chester 2nd; sire, Bornholm King, 2209; dam, Sussie 2nd, 2504.
5. R. H. Harding, Thorndale, Martha, 2761; sire, Thorndale Enterprise, 2484; dam, Duchess of York, 2012.

Sow, under 6 mos. Three entries.

1. W. E. Wright, Glanworth, Rose, 2859; sire, Sunnyside Boy, 2561; dam, Clara, 1705.
2. D. DeCourcey, Bornholm, Gaby, 2877; sire, Conqueror, 2039; dam, Miss Buller, 1428.
3. D. DeCourcey, Bornholm, Silverine, 2878; sire, Conqueror, 2039; dam, Miss Buller, 1428.

Three Chester Whites, offspring of one sow. Two entries.

1. W. E. Wright, Glanworth.
2. D. DeCourcey, Bornholm.

POLAND CHINAS.

Barrow, 6 mos. and under 9. One entry.

1. J. C. Smith, Fairfield Plains, Fred; sire, Canadian, 1499; dam, Scotland Queen, 1657.

Barrow, under 6 mos. Two entries.

1. J. C. Smith, Fairfield Plains, Regie; sire, Canadian, 1499; dam, Scotland Ida, 1656.
2. J. C. Smith, Fairfield Plains, Bob; sire, Canadian, 1499; dam, Scotland Ida, 1656.

Sow, 9 mos. and under 15. Three entries.

1. W. M. Smith, Scotland, Western Queen 3rd; sire, Oxford Lad, 1475; dam, Bacon Queen, 1432.
2. W. M. Smith, Scotland, Western Queen 4; sire, Oxford Lad, 1475; dam, Bacon Queen, 1432.
3. W. M. Smith, Scotland, Maggie; sire, Oxford Lad, 1475; dam, Bacon Queen, 1432.

Sow, 6 mos. and under 9. Three entries.

1. J. C. Smith, Fairfield Plains, Sarah, 1789; sire, Canadian, 1499; dam, Scotland Queen, 1657.
2. J. C. Smith, Fairfield Plains, Pheobe, 1790; sire, Canadian, 1499; dam, Scotland Queen, 1657.
3. W. M. Smith, Scotland, Flossie, 1791; sire, Canadian, 1499; dam, Scotland Queen, 1657.

Sow, under 6 mos. Three entries.

1. J. C. Smith, Fairfield Plains, Ethel, 1792; sire, Canadian, 1499; dam, Scotland Ida, 1656.
2. J. C. Smith, Fairfield Plains, Lena, 1793; sire, Canadian, 1499; dam, Scotland Ida, 1656.
3. W. M. Smith, Scotland, Minnie, 1794; sire, Canadian, 1499; dam, Scotland Ida, 1656.

Three Poland China Pigs, offspring of one sow. Two entries.

1. W. M. Smith, Scotland. 2 J. C. Smith, Fairfield Plains.

ESSEX.

Barrow, 6 mos. and under 9. Three entries.

1. J. Featherston & Son, Streetsville, Black Tom; sire, Paardeburg 45; dam, Topsy's Best 27.

Barrow, under 6 mos. Three entries.

1. T. A. McClure, Meadowvale, Tommy Terror; sire, Paardeburg 45; dam, Daisy Maid 40.
2. J. Featherston & Son, Streetsville, Didymus Dandy; sire, Longfellow 71; dam, Topsy Jay 66.
3. J. Featherston & Son, Streetsville, Didymus Dandy 2nd; sire, Longfellow 71; dam, Topsy Jay 66.

Sow, 9 mos. and under 15. Three entries.

1. J. Featherston & Son, Streetsville, Pine Grove Topsy 5th; sire, Paardeburg 45; dam, Topsy's Best 47.
2. T. A. McClure, Meadowvale, Pine Grove Topsy 87; sire, Pine Grove Longfellow 71; dam, Topsy Jay 66.
3. J. Featherston & Son, Streetsville, Pine Grove 6th; sire, Paardeburg 45; dam, Topsy's Best 47.

Sow, 6 mos. and under 9. Three entries.

1. J. Featherston & Son, Streetsville, P. G. Queen Bess 88; sire, Paardeburg 45; dam, Model Queen 26.
2. J. Featherston & Son, Streetsville, P. G. Queen Bess 2nd, 89; sire, Paardeburg 45; dam, Model Queen 26.
3. T. A. McClure, Meadowvale, Tozy Maid 7th; sire, Paardeburg 45; dam, Tozy Maid 38.

Sow, under 6 mos. Three entries.

1. T. A. McClure, Meadowvale, Daisy Maid 3rd, 86; sire, Paardeburg 45; dam, Daisy Maid 40.
2. J. Featherston & Sons, Streetsville, P. G. Didymus Maid; sire, Longfellow 71; dam, Topsy Jay 66.
3. J. Featherston & Sons, Streetsville, P. G. Didymus Maid 2nd; sire, Longfellow 71; dam, Topsy Jay 66.

Three Essex Pigs, offspring of one sow. Two entries.

1. J. Featherston & Son, Streetsville. 2. J. Featherston & Son, Streetsville.

TAMWORTHS.

Barrow, 6 mos. and under 9. Eight entries.

1. D. Douglas & Sons Mitchell, Simon; sire, Elmdale Chief, 2970; dam, Model Queen, 3064.
2. W. R. McDonald, Ridgetown, Joe; sire, Botany Boy, 871; dam, Net, 1166.
3. D. Douglas & Sons, Mitchell, Bob; sire, Elmdale Chief, 2970; dam, Model Queen, 3064.
4. D. Douglas & Sons, Mitchell, Long Tom; sire, Elmdale Chief, 2970; dam, Model Queen, 3064.
5. C. Currie, Morriston, Jack; sire, Duke of Morriston, 3045; dam, Bessie, 3095.

Barrow, under 6 mos. Nine entries.

1. A. Elliott & Sons, Galt, Englewood's Rector; sire, Englewood's Fireman, 3624; dam, Englewood's Gem, 3054.
2. A. Elliott & Son, Galt, Englewood's Rector 2nd; sire, Englewood's Fireman, 3624; dam, Englewood's Gem, 3054.
3. D. Douglas & Son, Mitchell, Red Joe; sire, Ralph, 1384; dam, Glanworth Maid, 1494.
4. D. Douglas & Son, Mitchell, Sidney; sire, Ralph, 1384; dam, Glanworth Maid, 1494.

Sow, 9 mos. and under 15. Five entries.

1. A. Elliott & Sons, Galt, Englewood's Royal Lady, 3629; sire, Sahib, 1310; dam, Moss Rose, 3082.
2. D. Douglas & Sons, Mitchell, Blain's Lass, 3526; sire, Royal Boy, 3086; dam, Thrifty Maid, 1881.
3. D. Douglas & Son, Mitchell, Lettie, 3604; sire, Newcastle Lord, 2429; dam, Glanworth Maid, 1494.
4. Chas. Currie, Morriston, Minnie, 352; sire, Duke of Morriston, 3045; dam, Daisy, 3500.
5. W. R. McDonald, Ridgetown, Concord Jane 2nd; sire, Botany Boy, 871; dam, Concord Jane, 1915.

Sow, 6 mos. and under 9. Eight entries.

1. H. German St. George, Thrifty Queen, 3599; sire, Royal Bob, 3086; dam, Thrifty Maid, 1881.
2. H. German, St. George, Thrifty Rose; sire, Bob, 3086; dam, Thrifty Maid, 1881.
3. D. Douglas & Sons, Mitchell, Amber Beauty; sire, Elmdale Chief, 2970; dam, Model Queen, 3604.
4. A. Elliott & Sons, Galt, Englewood's Pink 4th, 3627; sire, Paymaster, 3465; dam, Ruberta, 2511.
5. D. Douglas & Sons, Mitchell, Clara; sire, Elmdale Chief, 2970; dam, Model Queen, 3064.

Sow, under 6 mos. Nine entries.

1. W. R. McDonald, Ridgetown, Bert 3rd; sire, Botany Boy, 871; dam, Concord Jane, 1915.
2. A. Elliott & Sons, Galt, Englewood's Gem 2nd; sire, Englewood's Fireman, 3624; dam, Englewood's Gem, 3054.
3. D. Douglas & Sons, Mitchell, Kate; sire, Ralph, 1384; dam, Glanworth Maid, 1494.
4. W. R. McDonald, Ridgetown, Bert 2nd; sire, Botany Boy, 871; dam, Concord Jane, 1915.
5. W. R. McDonald, Ridgetown, Bert 1st; sire, Botany Boy, 871; dam, Concord Jane, 1915.

Three Tamworth Pigs, offspring of one sow. Five entries.

1. A. Elliott & Sons, Galt.
2. D. Douglas & Sons, Mitchell.
3. D. Douglas & Sons, Mitchell.

DUROC JERSEYS.

Barrow, 6 mos. and under 9. Three entries.

1. W. M. Smith, Scotland, Dick; sire, Canadian Jack, 522; dam, Bessie, 521.
2. W. M. Smith, Scotland, Tom; sire, Canadian Jack, 522; dam, Bessie, 521.
3. J. C. Smith, Fairfield Plains, Dan; sire, Canadian Jack, 522; dam, Bessie, 521.

Barrow, under 6 mos. Three entries.

1. W. M. Smith, Scotland, Jack; sire, Canadian Jack, 522; dam, Scotland Queen, 471.
2. W. M. Smith, Scotland, Jim; sire, Canadian Jack, 522; dam, Scotland Queen, 471.
3. J. C. Smith, Fairfield Plains, Frank; sire, Canadian Jack, 522; dam, Scotland Queen, 471.

Sow, 9 mos. and under 15. Two entries.

1. W. M. Smith, Scotland, Ida, 575; sire, Duke Grant 2nd, 249; dam, Scotland Queen, 471.
2. W. M. Smith, Scotland, Nellie, 576; sire, Duke Grant 2nd, 249; dam, Scotland Queen, 471.

Sow, 6 mos. and under 9. Two entries.

1. W. M. Smith, Scotland, Alice, 572; sire, Canadian Jack, 522; dam, Bessie, 521.
2. J. C. Smith, Fairfield Plains, Canadian Fairy; sire, Canadian Jack, 522; dam, Annie, 520.

Sow, under 6 mos. Three entries.

1. W. M. Smith, Scotland, Maud, 573; sire, Canadian Jack, 522; dam, Scotland Queen, 471.
2. W. M. Smith, Scotland, Ada, 574; sire, Canadian Jack, 522; dam, Scotland Queen, 471.
3. J. C. Smith, Fairfield Plains, Louisa; sire, Canadian Jack, 522; dam, Scotland Queen, 471.

Three Duroc Pigs, offspring of one sow. Two entries.

1. W. M. Smith, Scotland.
2. W. M. Smith, Scotland.

GRADES.

Barrow, 6 mos. and under 9. Six entries.

1. E. Brien & Sons, Ridgetown.
2. A. Elliott & Sons, Galt.
3. D. Douglas & Sons, Mitchell.

Barrow, under 6 mos. Ten entries.

1. W. R. McDonald, Ridgetown.
2. Snell & Lyons, Snelgrove.
3. W. M. Smith, Scotland.

Sow, 6 mos. and under 9. Eight entries.

1. A. Elliott & Sons, Galt.
2. D. Stewart, Hampstead.
3. J. & R. McQueen, Elora.

Sow, under 6 mos. Seventeen entries.

1. Cobb Dairy Company, Guelph.
2. W. R. McDonald, Ridgetown.
3. Snell & Lyons, Snelgrove.

Three Pure Bred Bacon Hogs. Thirty-three entries.

1. J. E. Brethour, Burford.
2. J. Wilson & Sons, Fergus.
3. J. Featherston & Sons, Streetsville.
4. A. Elliott & Son, Galt.
5. R. F. Duck & Sons, Pt. Credit.
6. J. E. Brethour, Burford.
7. C. Currie, Morriston.
8. R. F. Duck & Sons, Pt. Credit.
9. J. Featherston & Son, Streetsville.
10. D. Douglas & Son, Mitchell.

Three Grade or Cross Bacon Hogs. Eighteen entries.

1. J. Featherston & Son, Streetsville.
2. H. Dedells, Breslau
3. Jas. Rettie, Norwich.
4. Jas. Rettie, Norwich.
5. Cobb Dairy Co., Guelph.
6. A. Hales, Guelph.

Three Best Export Bacon Hogs. Fifteen entries.

1. J. Featherston & Son, Streetsville.

Three Export Bacon Hogs, fed in Wellington County. Seven entries.

1. J. Wilson & Son, Fergus.

Three Pure Bred Carcasses. Twenty-two entries.

1. J. E. Brethour, Burford.
2. C. Currie, Morriston.
3. D. Douglas & Sons, Mitchell.
4. J. E. Brethour, Burford.
5. J. Featherston & Sons, Streetsville.
6. H. Dedells, Breslau.
7. R. F. Duck & Sons, Pt. Credit.
8. C. Currie, Morriston.
9. A. Elliott & Son, Galt.
10. D. Douglas & Son, Mitchell.
11. J. E. Brethour, Burford.

Three Grade Carcasses. Sixteen entries.

1. J. Featherston & Son, Streetsville.
2. C. Currie, Morriston.
3. A. Elliott & Son, Galt.
4. W. E. Pollock, Norwich.
5. Jas. Rettie, Norwich.
6. J. & R. McQueen, Elora.
7. Jas. Rettie, Norwich.

Three Best Carcasses. Twelve entries.

1. J. E. Brethour, Burford.

Best Pen of Four Hogs. Sixteen entries.

1. J. E. Brethour, Burford.
2. J. Featherston & Son, Streetsville.

PRIZE WINNERS IN POULTRY, 1903.

Light Brahmas.

Cocks, 12.—1st, G. A. Tossy; 2nd, W. B. Nantel; 3rd, J. J. Pickard; 4th, W. R. Walker.
Hens, 15.—1st, 2nd and 4th, G. A. Tossy; 3rd, W R Walker.
Cockerels, 13.—1st and 4th, J. J. Pickard; 2nd, G. A. Tossy; 3rd, Rev. T. Geoghegan.
Pullets 15.—1st, 2nd and 4th, G. A. Tossy; 3rd, J. J. Pickard.

Dark Brahmas.

Cocks, 6.—1st, and 2nd, L. C. Sage; 3rd, W. B. Nantel.
Hens, 8.—1st and 3rd, L. C. Sage; 2nd, W. B. Nantel.
Cockerels, 7.—1st, Hoover & Nighswander; 2nd and 3rd, L. C. Sage.
Pullets, 9.—1st and 2nd, L. C. Sage; 3rd, W. B. Nantel.

Buff Cochins.

Cocks, 8.—1st, A. W. Bell; 2nd and 3rd, H. Wyatt & Son; 4th, Jos. Foster.
Hens, 6.—1st and 4th, A. W. Bell; 2nd and 3rd, H. Wyatt & Son.
Cockerels, 10.—1st, A. W. Bell; 2nd and 3rd, H. Wyatt & Son; 4th, H. Emrick.
Pullets, 11.—1st and 4th, H. Wyatt & Son; 2nd and 3rd, A. W. Bell.

Partridge Cochins.

Cocks, 3.—1st, R. Oke; 2nd, T. J. Kiley; 3rd, W. B. Nantel.
Hens, 2.—1st, R. Oke; 2nd, F. Wales.
Cockerels, 2.—1st, W. B. Nantel; 2nd, R. Oke.
Pullets, 3.—1st, R. Oke; 2nd, F. Wales; 3rd, W. B. Nantel.

Black Cochin.

Cocks, 3.—1st, J. A. Carroll; 2nd, M. T. Burn; 3rd, Readwin & Stefler.
Hens, 5.—1st, L. Glanville; 2nd, J. A. Carroll; 3rd, M. T. Burn.
Cockerels, 1.—1st, L. Glanville.
Pullets, 3.—1st, Readwin & Stefler; 2nd, L. Glanville; 3rd, M. T. Burn.

White Cochins.

Cocks, 4.—1st and 2nd, W. B. Nantel; 3rd, H. Emrick.
Hens, 4.—1st and 2nd, W. B. Nantel; 3rd, P. Gould.
Cockerels, 3.—1st and 2nd, H. Wyatt & Son; 3rd, W. B. Nantel.
Pullets, 5.—1st, 2nd and 3rd, H. Wyatt & Son.

Black Langshan.

Cocks, 4.—1st, C. A. R. Tilt; 2nd, E. J. Dewey; 3rd, R. McCurdy.
Hens, 8.—1st, C. A. R. Tilt; 2nd, E. J. Dewey; 3rd, R. McCurdy.
Cockerels, 5.—1st and 2nd, R. McCurdy; 3rd, C. A. R. Tilt.
Pullets, 6.—1st and 2nd, Sleeson & Briggs; 3rd, R. McCurdy.

A. O. C. Langshan.

Cocks, 2.—1st, W. J. Teale.
Hens, 2.—1st, W. J. Teale.
Cockerels, 2.—1st and 2nd, W. J. Teale.
Pullets, 2.—1st and 2nd, W. J. Teale.

Barred Plymouth Rocks.

Cocks, 9.—1st, I. K. Millard; 2nd, C. V. Cassidy; 3rd, N. Cosh.
Hens, 13.—1st, I. K. Millard; 2nd & 3rd, N. Cosh; 4th, C. V. Cassidy.
Cockerels, 16.—1st and 3rd, N. Cosh; 2nd, I. K. Millard; 4th, C. V. Cassidy.
Pullets, 12.—1st and 4th, N. Cosh; 2nd and 3rd, I. K. Millard.

White Plymouth Rock.

Cocks, 16.—1st, W. B. Bessey; 2nd, Natchez Poultry Yards; 3rd, Thos. Rice; 4th, H. H. Wallace.
Hens, 21.—1st and 4th, Natchez Poultry Yards; 2nd, F. A. Andrews; 3rd, H. H. Wallace, 5th, L. C. Sage.
Cockerels, 29.—1st, H. H. Wallace; 2nd, Thos. Rice; 3rd and 5th, A. G. Brown; 4th, L. C. Sage.
Pullets, 27.—1st and 5th, A. G. Brown; 2nd and 3rd, Thos. Rice; 4th, L. C. Sage.

Buff Plymouth Rocks.

Cocks, 9.—1st, 2nd, 3rd and 4th, J. R. Boyce.
Hens, 13.—1st, F. W. Krouse; 2nd, Jno. Bawden; 3rd and 4th, J. R. Boyce.
Cockerels, 12.—1st, J. R. Boyce; 2nd and 4th, J. McKay; 3rd, Jno. Bawden.
Pullets, 16.—1st and 2nd, Jno. Bawden; 3rd, J. R. Boyce; 4th, J. McKay.

Barred Rock Novice.

Cocks, 17.—1st, Wm. Oakley; 2nd, I. T. Knight; 3rd, Jas. McCormick; 4th, J. R. Boyce; 5th, J. D. Cowan.
Hens, 26.—1st, Wm. Oakley; 2nd and 3rd, J. S. Sterling; 4th, J. R. Boyce; 5th, W. J. Alexander.
Cockerels, 30.—1st and 4th, J. R. Boyce; 2nd, J. E. Fidler; 3rd, Lugsdin & Woolley; 5th, J. S. Sterling.
Pullets, 23.—1st, Jas. McCormick; 2nd, J. R. Boyce; 3rd, F. W. Krouse; 4th, Wm. Oakley; 5th, J. E. Fidler.

Golden Wyandotte.

Cocks, 8.—1st and 3rd, F. E. Wray; 2nd, Gofton & Daniel.
Hens, 10.—1st, J. H. Magill; 2nd, Gofton & Daniel; 3rd, F. E. Wray.
Cockerels, 9.—1st, F. E. Wray; 2nd, Gofton & Daniel; 3rd, J. H. Magill.
Pullets, 14.—1st and 2nd, Gofton & Daniel; 3rd, J. H. Magill; 4th, C. J. Daniels.

Silver Wyandotte.

Cocks, 10.—1st, Readwin & Stefler; 2nd, G. & J. Bogue; 3rd, Jas. Arthur.
Hens, 7.—1st, Readwin & Stefler; 2nd, R. W. Wray; 3rd, W. Lemon.
Cockerels, 7.—1st, Jas. Arthur; 2nd, J. J. Pickard; 3rd, Gofton & Daniel.
Pullets, 14.—1st, G. & J. Bogue; 2nd and 4th, Jas. Arthur; 3rd, W. Lemon.

Black Wyandotte.

Cocks, 2.—1st, F. P. McDonell; 2nd, G. & J. Bogue.
Hens, 5.—1st, F. P. McDonell; 2nd, G. & J. Bogue; 3rd, R. Oke.
Cockerels, 4.—1st, R. Dinner; 2nd, R. Oke; 3rd, G. & J. Bogue.
Pullets, 7.—1st, R. Oke; 2nd and 3rd, F. P. McDonell.

Buff Wyandotte.

Cocks, 9.—1st, A. W. Graham; 2nd, Thos. F. McCabe; 3rd, Rev. S. T. Bartlett.
Hens, 8.—1st, Rev. S. T. Bartlett; 2nd, T. F. McCabe; 3rd, Jas. Dundas.
Cockerels, 8.—1st and 2nd, Rev. S. T. Bartlett; 3rd, A. W. Graham.
Pullets, 12.—1st, Geo. C. Hamilton; 2nd and 3rd, Rev. S. T. Bartlett; 4th, Spry & Mick.

White Wyandotte.

Cocks, 15.—1st and 2nd, Chas. Massie; 3rd, J. S. Martin; 4th, J. A. Carroll; 5th, Wm. Wilson.
Hens, 20.—1st, J. A. Carroll; 2nd, Chas. Massie; 3rd, Wm. Wilson; 4th, J. S. Martin 5th, Geo. Paine.
Cockerels, 31.—1st and 3rd, R. B. Millard; 2nd, Wm. Wilson; 4th and 5th, Chas. Massie; 6th, J. S. Martin.
Pullets, 38.—1st and 4th, J. S. Martin; 2nd, N. T. Kettlewell; 3rd, J. A. Carroll; 5th, Chas. Massie; 6th, Geo. Elliott.

Partridge Wyandotte.

Cocks, 4.—1st and 2nd, T. H. Scott; 3rd, W. C. Hugh.
Hens, 5.—1st and 2nd, T. H. Scott; 3rd, W. C. Hugh; 4th, A. Newlands.
Cockerels, 9.—1st, 2nd, 3rd and 4th, T. H. Scott.
Pullets, 9.—1st, 2nd, 3rd and 4th, T. H. Scott.

Dominique.

Cocks, 3.—1st, G. & J. Bogue; 2nd, M. T. Burn; 3rd, A. Fink.
Hens, 4.—1st and 3rd, M. T. Burn; 2nd, G. & J. Bogue.
Cockerels, 5.—1st, C. J. Niall; 2nd, A. Fink; 3rd, M. T. Burn.
Pullets, 4.—1st, A. Fink; 2nd, M. T. Burn; 3rd, G. & J. Bogue.

Black Javas.

Cocks, 5.—1st, R. Oke; 2nd, Jno. Colson; 3rd, C. J. Daniels.
Hens, 7.—1st, R. Oke; 2nd, W. H. Reid; 3rd, G. & J. Bogue.
Cockerels, 3.—1st, R. Oke; 2nd, Jno. Colson; 3rd, C. J. Daniels.
Pullets, 5.—1st, R. Oke; 2nd, Jno. Colson; 3rd, C. J. Daniels.

A. O. C. Java.

Cocks, 4.—1st, W. H. Reid; 2nd, C. J. Daniels; 3rd, R. Oke.
Hens, 4.—1st and 2nd, W. H. Reid; 3rd, R. Oke.
Cockerels, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Pullets, 3.—1st, R. Oke; 2nd, G. & J. Bogue; 3rd, C. J. Daniels.

R. C. White Leghorn.

Cocks, 6.—1st, R. Oke; 2nd, W. J. Bell; 3rd, W. A. Rife.
Hens, 8.—1st, W. J. Bell; 2nd, W. A. Rife; 3rd, R. Oke.
Cockerels, 6.—1st, R. Oke; 2nd, W. J. Bell; 3rd, W. A. Rife.
Pullets, 8.—1st, R. Oke; 2nd, Hoover & Nighswander; 3rd, W. A. Rife.

S. C. W. Leghorns.

Cocks, 15.—1st, 2nd, and 3rd, Grier & Pratt; 4th, C. A. Reid.
Hens, 15.—1st, W. J. Fullerton; 2nd, F. Wales; 3rd, J. E. Hussy; 4th, E. Builder.
Cockerels, 24.—1st, F. Wales; 2nd, E. Builder; 3rd and 4th, T. Rice; 5th, J. A. Harron.
Pullets, 26.—1st and 4th, F. Wales; 2nd and 5th, Orr & Ferguson; 3rd, E. Builder.

Black Leghorns.

Cocks, 4.—1st and 2nd, W. M. Osborne; 3rd, F. P. McDonnell.
Hens, 5.—1st, Grundy Bros.; 2nd and 3rd, W. M. Osborne.
Cockerels, 8.—1st, 2nd and 3rd, W. M. Osborne.
Pullets, 6.—1st and 2nd, W. M. Osborne; 3rd, Readwin & Stefler.

R. C. Br. Leghorns.

Cocks, 5.—1st, Wm. Cadman; 2nd, W. C. Wilson & Sons; 3rd, Henderson & Billings.
Hens, 5.—1st and 3rd, W. C. Wilson; 2nd, Henderson & Billings.
Cockerels, 10.—1st and 3rd, W. C. Wilson; 2nd. Wm. Cadman.
Pullets, 9.—1st. Wm. Cadman; 2nd, Hoover & Nighswander; 3rd. Henderson & Billings.

S. C. Br. Leghorns.

Cocks, 7.—1st and 2nd, Jno. Bradley; 3rd, G. G. Henderson.
Hens, 14.—1st and 2nd, G. G. Henderson; 3rd, H. F. Becker; 4th, Jno. Bradley.
Cockerels, 26.—1st, G. G. Henderson; 2nd, W. M. Lockwood; 3rd and 4th, H. F. Becker; 5th, Hoover & Nighswander.
Pullets, 30.—1st and 5th, G. G. Henderson; 2nd, 3rd, and 4th, H. F. Becker.

Buff Leghorns.

Cocks, 6.—1st and 2nd, N. K. Cornwall; 3rd, Jas. Dundas.
Hens, 7.—J. A. Harron; 2nd and 3rd, Jas. Dundas.
Cockerels, 17.—1st, 2nd and 3rd, N. K. Cornwall; 4th, Jas. Dundas.
Pullets, 15.—1st, 3rd and 4th, J. A. Harron; 2nd, N. K. Cornwall.

Spanish.

Cocks, 4.—1st and 3rd, J. H. Warrington; 2nd, G. & J. Bogue.
Hens, 5.—1st, J. H. Warrington; 2nd, G. & J. Bogue; 3rd, P. Gould.
Cockerels, 4.—1st, J. H. Warrington; 2nd and 3rd, G. & J. Bogue.
Pullets, 3.—1st, J. H. Warrington; 2nd, G. & J. Bogue; 3rd, Henderson & Billings.

Black Minorca.

Cocks, 8.—1st and 3rd, J. H. Minshall; 2nd, H. Munro.
Hens, 10.—1st and 3rd, J. H. Minshall; 2nd, H. Munro.
Cockerels, 12.—1st, 2nd and 3rd, J. H. Minshall; 4th, H. Munro.
Pullets, 12.—1st, 2nd and 4th, J. H. Minshall; 3rd, H. Munro.

White Minorca.

Cocks.—None entered.
Hens, 2.—1st and 2nd, H. Dunne.
Cockerels, 3.—1st, 2nd and 3rd, H. Dunne.
Pullets, 3.—1st, 2nd and 3rd, H. Dunne.

Andalusian.

Cocks, 4.—1st, N. Cosh; 2nd, C. A. Reid; 3rd, T. Wardell.
Hens, 7.—1st, N. Cosh; 2nd and 3rd, T. Wardell.
Cockerels, 5.—1st and 2nd, N. Cosh; 3rd, C. LaRose.
Pullets, 4.—1st and 2nd, N. Cosh; 3rd, C. A. Reid.

G. S. Hamburg.

Cocks, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Hens, 3.—1st, Wm. McNeil; 2nd, R. Oke.
Cockerels, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Jos. Foster.
Pullets, 5.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Jos. Foster.

S. Sp. Hamburg.

Cocks, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Wm. Cadman.
Hens, 4.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Wm. Cadman.
Cockerels, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, D. Urquhart.
Pullets, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, D. Urquhart.

Golden Pencilled Hamburg.

Cocks, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Hens, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Cockerels, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Pullets, 2.—1st, R. Oke; 2nd, Wm. McNeil.

Silver Pencilled Hamburg.

Cocks, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Hens, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Cockerels, 3.—A. Bogue; 2nd, Wm. McNeil; 3rd, R. Oke.
Pullets, 2.—1st, R. Oke; 2nd, Wm. McNeil.

Black Hamburg.

Cocks, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Hens, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Cockerels, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, D. Urquhart.
Pullets, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, D. Urquhart.

Red Caps.

Cocks, 2.—1st, G & J. Bogue; 2nd, J. H. Warrington.
Hens, 4.—1st, J. H. Warrington; 2nd, G. & J. Bogue; 3rd, C. J. Daniels.
Cockerels, 3.—1st, J. H. Warrington; 2nd, C. J. Daniels; 3rd, G. & J. Bogue
Pullets, 3.—1st, J. H. Warrington; 2nd, C. J. Daniels; 3rd, G. & J. Bogue.

Black Red Game.

Cocks, 7.—1st and 4th, W. H. Butler; 2nd, Jno. Crowe; 3rd, Jno. Morley.
Hens, 7.—1st, Jas. Philpot; 2nd and 3rd, Jno. Crowe; 4th, Tedford & Collar.
Cockerels, 10.—1st, 2nd, 3rd and 4th, W. H. Butler.
Pullets, 6.—1st and 3rd, W. H. Butler; 2nd, Jno. Crowe; 4th, Jno. Morley.

Brown Red Game.

Cocks, 2.—1st, W. Barber Co.; 2nd, Tyson & McMaster.
Hens, 4.—1st, 2nd and 3rd, Tyson & McMaster.

Duckwing Game.

Cocks, 3.—1st and 2nd, W. Barber; 3rd, Jas. Philpot.
Hens, 4.—1st, W. Barber; 2nd, Jas. Philpot; 3rd, Geo. Vance
Cockerels, 3.—1st, Geo. Vance; 2nd and 3rd, W. Barber.
Pullets, 2.—1st and 2nd, W. Barber.

Pyle Game.

Cocks, 4.—1st, Tyson & McMaster; 2nd and 3rd, T. Sherlock.
Hens, 5.—1st, T. Sherlock; 2nd, W. Barber; 3rd, Tyson & McMaster.
Cockerels, 3.—1st, T. Sherlock; 2nd and 3rd, Tyson & McMaster
Pullets, 6.—1st and 4th, T. Sherlock; 2nd, Tyson & McMaster; 3rd, W. Barber.

Indian Game.

Cocks, 10.—1st and 2nd, J. A. Carroll; 3rd, J. W. Nixon; 4th, R. Dinner.
Hens, 11.—1st, J. A. Carroll; 2nd, M. L. Farrell; 3rd, Jos. Foster; 4th, R. Dinner.
Cockerels, 8.—1st and 4th, J. A. Carroll; 2nd, C. LaRose; 3rd, J. W. Nixon.
Pullets, 6.—1st and 2nd, J. A. Carroll; 3rd, C. LaRose; 4th, J. W. Nixon.

A. O. S. V. Game.

Cocks, 5.—1st, G. & J. Bogue; 2nd, W. H. Reid; 3rd, M. T. Burn.
Hens, 4.—1st, W. H. Reid; 2nd, M. T. Burn; 3rd, C. J. Daniels.
Cockerels, 3.—1st, C. J. Daniels; 2nd, G. & J. Bogue; 3rd, W. H. Reid.
Pullets, 6.—1st, W. H. Reid; 2nd, Tyson & McMaster; 3rd, M. T. Burn.

B. R. Game Bantam.

Cocks, 8.—1st and 2nd, Chas. R. Crowe; 3rd, Oakwood Farm.
Hens, 11.—1st, Wm. Hammell; 2nd and 3rd, Chas. R. Crowe.
Cockerels, 11.—1st, Wm. Hammell; 2nd and 3rd, Chas. R. Crowe.
Pullets, 14.—1st, Wm. Hammell; 2nd and 3rd, Chas. R. Crowe.

Br. Red Game Bantam.

Cocks, 2.—1st, Wm. Hammall; 2nd, W. Barber Co.
Hens, 7.—1st, Wm. Hammall; 2nd and 3rd, Jas. Philpot.
Cockerels, 4.—1st, Wm. Barber; 2nd, Jas. Philpot; 3rd, H. R. Tozer.
Pullets, 3.—1st, H. R. Tozer; 2nd, Jas. Philpot; 3rd, Jas. McCormick.

Duckwing Bantam.

Cocks, 5.—1st, Wm. Hammall; 2nd, W. Barber; 3rd, Boug Bros.
Hens, 4.—1st, Wm. Hammall; 2nd, Boug Bros.; 3rd, W. Barber.
Cockerels, 4.—1st, W. Barber; 2nd, S. D. Furminger; 3rd, Boug Bros.
Pullets, 5.—1st, W. Barber; 2nd, E. Spiers; 3rd, Boug Bros.

Pyle Bantam.

Cocks, 10.—1st, Hart & Grimoldby; 2nd, Tyson & McMaster; 3rd, Jas. Bertie; 4th, W. J. Thompson.
Hens, 13.—1st and 2nd, Tyson & McMaster; 3rd, Jas. Bertie.
Cockerels, 7.—1st, E. Spiers; 2nd and 3rd, Jas. Bertie.
Pullets, 15.—1st, Hart & Grimoldby; 2nd, Jas. Bertie; 3rd and 4th, Tyson & McMaster.

White Game Bantam.

Cocks, 2.—1st, Wm. Hammall; 2nd, H. B. Donovan.
Hens, 2.—1st and 2nd, H. B. Donovan.
Cockerels, 2.—1st and 2nd, H. B. Donovan.
Pullets, 4.—1st and 2nd, H. B. Donovon; 3rd, W. Hammall.

A. O. V. Game Bantam.

Cocks, 3.—1st, S. D. Furminger; 2nd, H. B. Donovan; 3rd, Wm. Hammall.
Hens, 3.—1st, H. B. Donovan; 2nd, S. D. Furminger; 3rd, Wm. Hammall.
Cockerels, 3.—1st, S. D. Furminger; 2nd, H. B. Donovan; 3rd, Jas. McCormick.
Pullets, 3.—1st, S. D. Furminger; 2nd, H. B. Donovan; 3rd, Jas. McCormick.

Golden Sebright.

Cocks, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Hens, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Cockerels, 4.—1st and 3rd, V. Fortier; 2nd, R. Oke.
Pullets, 5.—1st and 3rd, V. Fortier; 2nd, W. J. Teale.

Silver Sebright.

Cocks, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Hens, 3.—1st, Wm. McNeil; 2nd, E. Spiers; 3rd, R. Oke.
Cockerels, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Pullets, 3.—1st, R. Oke; 2nd, E. Spiers; 3rd, Wm. McNeil.

R. C. Bantam.

Cocks, 3.—1st, Wm. McNeil; 2nd, H. B. Donovan; 3rd, R. Oke.
Hens, 4.—1st, H. B. Donovan; 2nd, R. Oke; 3rd, Wm. McNeil.
Cockerels, 5.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, H. B. Donovan.
Pullets, 2.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, Slesson & Briggs.

White Cochin Bantam.

Cocks, 5.—1st, H. B. Donovan; 2nd, Wm. McNeil; 3rd, R. Rogers.
Hens, 6.—1st, R. Rogers; 2nd, H. B. Donovan; 3rd, Wm. McNeil.
Cockerels, 5.—1st and 2nd, Wm. McNeil; 3rd, R. Rogers.
Pullets, 6.—1st and 2nd, Wm. McNeil; 3rd, R. Rogers.

Buff Cochin Bantams.

Cocks, 4.—1st, Wm. McNeil; 2nd, T. J. Kiley; 3rd, R. Oke.
Hens, 4.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, T. J. Kiley.
Cockerels, 3.—1st, Wm. McNeil; 2nd, T. J. Kiley; 3rd, R. Oke.
Pullets, 5.—1st, Wm. McNeil; 2nd, T. J. Kiley; 3rd, R. Oke.

Black Cochin Bantams.

Cocks, 5.—1st, H. B. Donovan; 2nd, T. J. Kiley; 3rd, Geo. Colwell.
Hens, 8.—1st, T. J. Kiley; 2nd, Geo. Colwell; 3rd, Slesson & Briggs.
Cockerels, 8.—1st and 2nd, T. J. Kiley; 3rd, Slesson & Briggs.
Pullets, 10.—1st, T. J. Kiley; 2nd, Slesson & Briggs; 3rd, Doidge & McNeil.

Partridge Cochin Bantam.

Cocks, 5.—1st, R. & I. Graham; 2nd, T. J. Kiley; 3rd, H. B. Donovan; 4th, A. W. Bell.
Hens, 4.—1st and 3rd, A. W. Bell; 2nd, R. & I. Graham.
Cockerels, 7.—1st and 2nd, A. W. Bell; 3rd, H. R. Tozer.
Pullets, 10.—1st, A. W. Bell; 2nd, H. R. Tozer; 3rd, H. Wyatt & Son.

White Booted Bantam.

Cocks, 3.—1st, R. Oke; 2nd, W. J. Teale; 3rd, T. J. Kiley.
Hens, 3.—1st, T. J. Kiley; 2nd, R. Oke; 3rd, W. J. Teale.
Cockerels, 3.—1st, T. J. Kiley; 2nd, R. Oke; 3rd, W. J. Teale.
Pullets, 3.—1st, T. J. Kiley; 2nd, R. Oke; 3rd, W. J. Teale.

Black Tailed Japanese Bantam.

Cocks, 3.—1st, H. B. Donovan; 2nd, Wm. McNeil; 3rd, R. Oke.
Hens, 3.—1st, R. Oke; 2nd, H. B. Donovan.
Cockerels, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, H. B. Donovan.
Pullets, 4.—1st, H. B. Donovan; 2nd, Wm. McNeil; 3rd, R. Oke.

White Japanese Bantam.

Cocks, 4.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, H. B. Donovan.
Hens, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, M. T. Burn.
Cockerels, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, H. B. Donovan.
Pullets, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, H. B. Donovan.

Polish Bantam.

Cocks, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Hens, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, H. B. Donovan.
Cockerels, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Pullets, 3.—1st, H. B. Donovan; 2nd, R. Oke; 3rd, Wm. McNeil.

A. O. V. Bantam.

Cocks, 5.—1st and 2nd, H. B. Donovan; 3rd, A. A. Ling.
Hens, 5.—1st, H. B. Donovan; 2nd, R. Oke; 3rd, A. A. Ling.
Cockerels, 5.—1st and 2nd, H. B. Donovan; 3rd, W. E. Raymo.
Pullets, 5.—1st and 2nd, H. B. Donovan; 3rd, A. A. Ling.

Silver Grey Dorking.

Cocks, 5.—1st, Jas. McCormick; 2nd, J. Foster; 3rd and 4th, Jno. McKee.
Hens, 9.—1st, J. Foster; 2nd, Jno. McKee; 3rd, A. Bogue; 4th, T. Clayfiel.
Cockerels, 9.—1st, J. Foster; 2nd, Jno. McKee; 3rd, Jas. McCormick; 4th, A. G. H. Luxton.
Pullets, 8.—1st and 4th, Jno. McKee; 2nd, Jas. McCormick; 3rd, S. D. Furminger.

Colored Dorking.

Cocks, 3.—1st, A. Bogue; 2nd, S. D. Furminger; 3rd, Jas. McCormick.
Hens, 4.—1st and 2nd, A. Bogue; 3rd, Jas. McCormick; 4th, S. D. Furminger.
Cockerels, 5.—1st and 2nd, A. Bogue; 3rd, Jas. McCormick; 4th, S. D. Furminger.
Pullets, 2.—1st, Jas. McCormick; 2nd, S. D. Furminger.

White Dorking.

Cocks, 5.—1st and 2nd, A. Bogue; 3rd, Readwin & Steffler.
Hens, 5.—1st and 2nd, A. Bogue; 3rd, J. H. Warrington; 4th, Readwin & Steffler.
Cockerels, 4.—1st and 2nd, A. Bogue; 3rd, Readwin & Steffler.
Pullets, 4.—1st and 2nd, A. Bogue; 3rd, Readwin & Steffler.

Buff Orpingtons.

Cocks, 14.—1st, H. A. Hoffman; 2nd, Alf. Boultbee; 3rd, Wm. Cadman; 4th, N. Cosh.
Hens, 17.—1st, T. F. Kingsmill, Jr.; 2nd, S. W. D. Frith; 3rd, W. C. Hugh; 4th, M. H. Stroh.

Cockerels, 35.—1st, N. Cosh; 2nd, Chas. Massie; 3rd, J. McKay; 4th, N. Cosh; 5th, W. H. Biggar.
Pullets, 50.—1st and 2nd, T. F. Kingsmill; 3rd, H. A. Hoffman; 4th, Jas. B. Greig; 5th, W. K. Kerr.

A. O. C. ORPINGTONS.

Cocks, 3.—1st, S. D. Furminger; 2nd and 3rd, C. J. Daniels.
Hens, 5.—1st and 2nd, S. D. Furminger; 3rd, C. J. Daniels.
Cockerels, 8.—1st, H. A. Hoffman; 2nd and 3rd, J. H. Cameron.
Pullets, 11.—1st, H. A. Hoffman; 2nd, H. A. Hoffman; 3rd, C. J. Daniels.

W. C. B. POLAND.

Cocks, 3.—1st, A. Bogue; 2nd, Wm. McNeil; 3rd, G. & J. Bogue.
Hens, 3.—1st, A. Bogue; 2nd, Wm. McNeil; 3rd, G. & J. Bogue.
Cockerels, 7.—1st, Wm. Bush; 2nd, A. Bogue; 3rd and 4th, D. S. Cullen.
Pullets, 4.—1st and 2nd, D. S. Cullen; 3rd, A. Bogue; 4th, Wm. McNeil.

GOLDEN POLAND.

Cocks, 3.—1st, Wm. McNeil; 2nd, G. & J. Bogue; 3rd, A. Bogue.
Hens, 3.—1st, A. Bogue; 2nd, Wm. McNeil; 3rd, G. & J. Bogue.
Cockerels, 2.—1st, A. Bogue; 2nd, Wm. McNeil.
Pullets, 3.—1st, A. Bogue; 2nd, Wm. McNeil; 3rd, G. & J. Bogue.

SILVER POLAND.

Cocks, 1.—1st, M. T. Burn.
Hens, 2.—1st and 2nd, M. T. Burn.
Cockerels, 2.— 1st and 2nd, M. T. Burn.
Pullets, 1.—1st, M. T. Burn.

WHITE POLAND.

Cocks, 2.—1st, A. Bogue; 2nd, Wm. McNeil.
Hens, 2.—1st, Wm. McNeil; 2nd, A. Bogue.
Cockerels, 2.—1st, A. Bogue; 2nd, Wm. McNeil.
Pullets 2.—1st, A. Bogue; 2nd, Wm. McNeil.

GOLDEN BEARDED POLAND.

Hens, 2.—1st, A. Bogue; 2nd, Wm. McNeil.
Cocks, 2.—1st, A. Bogue; 2nd, Wm. McNeil
Cockerels, 1.—1st, Wm. McNeil.
Pullets, 1.—1st, Wm. McNeil.

SILVER BEARDED POLAND.

Cocks, 2.—1st, Wm. McNeil; 2nd, A. Bogue.
Hens, 2.—1st, Wm. McNeil; 2nd, A. Bogue.
Cockerels, 3.—1st, A. Bogue; 2nd, W. B, Nantel; 3rd, Wm. McNeil.
Pullets, 3.—1st, Wm. McNeil; 2nd, A. Bogue; 3rd, W. B. Nantel.

WHITE BEARDED POLAND.

Cocks, 3.—1st, Wm. McNeil; 2nd, A. Bogue; 3rd, P. Gould.
Hens, 3.—1st, Wm. McNeil; 2nd, P. Gould.
Cockerels, 2.—1st, A. Bogue; 2nd, Wm. McNeil.
Pullets, 2.—1st, Wm. McNeil; 2nd, A. Bogue.

BUFF LACED POLAND.

Cocks, 3.—1st and 2nd, Wm. McNeil; 3rd, G. & J. Bogue.
Hens, 3.—1st and 2nd, Wm. McNeil; 3rd, G. & J. Bogue.
Cockerels, 3.—1st and 2nd, Wm. McNeil; 3rd, G. & J. Bogue.
Pullets, 3.—1st and 2nd, Wm. McNeil; 3rd, G. & J. Bogue.

HOUDAN.

Cocks, 8.—1st, A. Bogue; 2nd, G. & J. Bogue; 3rd, M. T. Burn; 4th, D. C. Trew.
Hens, 10.—1st and 2nd, D. C. Trew; 3rd, W. E. Pollock; 4th, D. C. Trew.
Cockerels, 9.—1st, G. & J. Bogue; 2nd, 3rd and 4th, D. C. Trew.
Pullets, 9.—1st and 3rd, G. & J. Bogue; 2nd, D. C. Trew; 4th, W. E. Pollock.

CREVE COUER.

Cocks, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Hens, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Cockerels, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Pullets, 2.—1st, R. Oke; 2nd, G. & J. Bogue.

La Fleche.

Cocks, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Hens, 2.—1st, G. & J. Bogue; 2nd, R. Oke.
Cockerels, 1.—1st, R. Oke.
Pullets, 2.—1st, R. Oke; 2nd, G. & J. Bogue.

Sultan.

Cocks, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Hens, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Cockerels, 2.—1st and 2nd, R. Oke.
Pullets, 2.—1st, G. & J. Bogue; 2nd, R. Oke.

Silky.

Cocks, 4.—1st, Wm. McNeil; 2nd, H. B. Donovan; 3rd, M. T. Burn.
Hens, 5.—1st and 2nd, Wm. McNeil; 3rd, H. B. Donovan.
Cockerels, 4.—1st, Wm. McNeil; 2nd, H. B. Donovan.
Pullets, 5.—1st, Wm. McNeil; 2nd, H. B. Donovan; 3rd, M. T. Burn.

A. O. V. Fowl.

Cocks, 4.—1st, M. T. Burn; 2nd, W. C. Hugh; 3rd, J. C. McKay.
Hens, 5.—1st, M. T. Burn; 2nd, W. C. Hugh; 3rd, J. C. McKay.
Cockerels, 11.—1st, M. T. Burn; 2nd, T. H. Scott; 3rd, J. C. McKay.
Pullets, 11.—1st, M. T. Burn; 2nd, T. H. Scott; 3rd, Jos. Hubert.

Crossbred.

Cocks.—No entries. *Hens*.—No entries.
Cockerels, 5.—1st and 3rd, W. H. Biggar; 2nd, E. A. Hales.
Pullets, 3.—1st and 2nd, W. H. Biggar; 3rd, Henderson & Billings.

TURKEYS.

Bronze, 2 yrs. and up.

Cocks, 6.—1st, Jas. Ford & Sons; 2nd and 4th, W. H. Beattie; 3rd, W. J. Bell.
Hens, 6.—1st, W. J. Bell; 2nd, Jas. Ford & Sons; 3rd, A. McDougall & Son; 4th, W. H. Beattie.

Bronze.

Cocks, 6.—1st, W. H. Beattie; 2nd, W. J. Bell; 3rd and 4th, A. McDougall & Son; 5th, J. Walter Wood, Jr.
Hens, 8.—1st and 2nd, W. J. Bell; 3rd and 4th, A. McDougall & Son; 5th, Jas. Ford & Sons.
Cockerels, 8.—1st and 2nd, W. J. Bell; 3rd, J. Ford & Sons; 4th and 5th, A. McDougall & Son.
Pullets, 7.—1st and 2nd, W. J. Bell; 3rd, Jas. Ford & Sons; 4th and 5th, A. McDougall & Son.

White or Black Turkey.

Cocks, 5.—1st and 2nd, W. H. Beattie; 3rd, W. J. Alexander; 4th, Baker Bros.; 5th, E. A. Hales.
Hens, 5.—1st, 2nd and 4th, W. H. Beattie; 3rd, E. A. Hales; 5th, W. J. Alexander.
Cockerels, 6.—1st, Baker Bros.; 2nd and 5th, W. H. Beattie; 3rd, W. J. Alexander; 4th, E. A. Hales.
Pullets, 6.—1st, W. J. Bell; 2nd, Baker Bros.; 4th and 5th, W. H. Beattie; 3rd, W. J. Alexander.

A. O. V. Turkey.

Cocks, 3.—1st, Andrew Elliott; 2nd and 3rd, A. G. H. Luxton.
Hens, 6.—1st, W. H. Beattie; 2nd and 5th, And. Elliott; 3rd and 4th, A. G. H. Luxton.
Cockerels, 5.—1st and 2nd, Andrew Elliott; 3rd, W. H. Beattie; 4th and 5th, A. G. H. Luxton.
Pullets, 6.—1st and 2nd, And. Elliott; 3rd and 5th, A. G. H. Luxton; 4th, W. H. Beattie.

GEESE.

Toulouse.

Males, 5.—1st, A. Bogue; 2nd and 3rd, Geo. Colwell; 4th, Scanlon Bros.
Females, 6.—1st, A. Bogue; 2nd and 4th, Geo. Colwell; 3rd, Scanlon Bros.
1905 Males, 6.—1st, Geo. Colwell; 2nd, Jas. A. Johnston; 3rd, T. M. Shea; 4th, Scanlon Bros.
1903 Females, 6.—1st and 2nd, Geo. Colwell; 3rd, Jas. A. Johnston; 4th, T. M. Shea.

Bremen.

Males, 5.—1st and 3rd, Geo. Colwell; 2nd, C. A. R. Tilt; 4th, Jas. A. Johnston
Females, 5.—1st, C. A. R. Tilt; 2nd and 4th, Geo. Colwell; 3rd, Scanlon Bros.
1903 Males, 5.—1st, C. A. R. Tilt; 2nd and 3rd, Geo. Colwell; 4th, A. McDougall & Son.
1903 Females, 5.—1st, C. A. R. Tilt; 2nd and 3rd, Geo. Colwell; 4th, A. McDougall & Son.

China.

Males, 3.—1st, M. T. Burn; 2nd, Geo. Colwell; 3rd, A. G. H. Luxton.
Females, 4.—1st and 4th, Geo. Colwell; 3rd, A. G. H. Luxton; 2nd, M. T. Burn.
1903 Males, 4.—1st, M. T. Burn; 2nd, Geo. Colwell; 3rd, A. G. H. Luxton; 4th, J. A. Johnston.
1903 Females, 5.—1st, M. T. Burn; 2nd, Geo. Colwell; 3rd, A. G. H. Luxton; 4th, J. A. Johnston.

A. O. V. Geese.

Males, 5.—1st, M. T. Burn; 2nd, Geo. Colwell; 3rd, T. M. Shea; 4th, A. G. H. Luxton.
Females, 5.—1st, M. T. Burn; 2nd, Geo. Colwell; 3rd, T. M. Shea; 4th, A. G. H. Luxton.
1903 Males, 6.—1st, A. G. H. Luxton; 2nd, Geo. Colwell; 3rd and 4th, T. M. Shea.
1903 Females, 6.—1st, Geo. Colwell; 2nd, A. G. H. Luxton; 3rd and 4th, T. M. Shea.

DUCKS.

Aylesbury.

Drakes, 5.—1st, A. Bogue; 2nd and 3rd, Geo. Colwell; 4th, Jas. A. Johnston.
Ducks, 4.—1st, H. H. Wallace; 2nd and 4th, Geo. Colwell; 3rd, A. Bogue.
1903 Drakes, 3.—1st and 2nd, Geo. Colwell; 3rd, A. Bogue.
1903 Ducks, 4.—1st, A. Bogue; 2nd and 3rd, Geo. Colwell; 4th, H.H. Wallace.

Rouen.

Drakes, 5.—1st, Baker Bros.; 2nd and 3rd, Geo. Colwell; 4th, T. M. Shea.
Ducks, 4.—1st and 2nd, Geo. Colwell; 3rd, T. M. Shea; 4th, Jas. McCormick.
1903 Drakes, 6.—1st, A. Bogue; 2nd, Geo. Colwell; 3rd, T. M. Shea; 4th, Jas. M. Mc Cormick.
1903 Ducks, 6.—1st and 4th, Geo. Colwell; 2nd, Jas. M. McCormick; 3rd, T. M. Shea.

Pekin.

Drakes, 6.—1st, A. Bogue; 2nd, J. B. Woodhall; 3rd, Baker Bros.; 4th, C. A. R. Tilt.
Ducks, 7.—1st, A. Bogue; 2nd, C. A. R. Tilt; 3rd, Baker Bros.; 4th, J. B. Woodhall.
1903 Drakes, 10.—1st, A. McDougall & Son; 2nd, A. Bogue; 3rd, Scanlon Bros.; 4th, C. A. R. Tilt.
1903 Ducks, 9.—1st, A. Bogue; 2nd and 3rd, C. A. R. Tilt; 4th, A. McDougall & Son.

Indian Runner.

Drakes, 3.—1st and 2nd, Jno. Colson; 3rd, S. D. Furminger.
Ducks, 3.—1st and 2nd, Jno. Colson; 3rd, S. D. Furminger.
1903 Drakes, 3.—1st, S. D. Furminger; 2nd and 3rd, Jno. Colson.
1903 Ducks, 1.—1st, S. D. Furminger.

Cayuga.

Drakes, 5.—1st, G. & J. Bogue; 2nd, I. T. Knight; 3rd, Readwin & Steffler; 4th, Geo. Colwell.
Ducks, 4.—1st and 3rd, I. T. Knight; 2nd, G. & J. Bogue; 4th, Readwin & Steffler.
1903 Drakes, 7.—1st and 2nd, I. T. Knight; 3rd, T. M. Shea; 4th, Readwin & Steffler.
1903 Ducks, 6.—1st aad 2nd, I. T. Knight; 3rd, G. & J. Bogue; 4th, Readwin & Steffler.

A. O. V. Duck.

Drakes, 4.—1st, I. T. Knight; 2nd and 3rd, M. T. Burn.
Ducks, 3.—1st and 2nd, M. T. Burn; 3rd, I. T. Knight.
1903 Drakes, 5.—1st and 3rd, I. T. Knight; 2nd, Geo. Colwell; 4th, M. T. Burn.
1903 Ducks, 5.—1st, A. G. H. Luxton; 2nd and 4th, I. T. Knight; 3rd, M. T. Burn.

Pair English Pheasants.

1.—1st, Dentonia Park Farm.
Silver, 1.—1st, R. Goldie.
Golden, 1.—1st, R. Goldie.

PIGEONS.

Black Carrier.

Cock, 2.—1st and 2nd, Geo. J. White. *Hen*, 2.—1st and 2nd, Geo. J. White.

Dun Carrier.

Cock, 2.—1st and 2nd, Geo. J. White. *Hen*, 2.—1st and 2nd, Geo. J. White.

A. O. S. C. Carrier.

Cocks, 4.—1st, Geo. J. White; 2nd, W. H. Reid.
Hens, 3.—1st, Geo. J. White; 2nd, W. H. Reid.

White Pouter.

Cocks, 7.—1st, Bell, Currier & Price; 2nd, J. H. Karn.
Hens, 6.—1st and 2nd, Bell, Currier & Price.

Blue Pied Pouter.

Cocks, 5.—1st, Bell, Currier & Price; 2nd, J. H. Magill.
Hens, 4.—1st and 2nd, Bell, Currier & Price.

Black Pied Pouter.

Cocks, 4.—1st, J. H. Magill; 2nd, Bell, Currier & Price.
Hens, 3.—1st, Bell, Currier & Price; 2nd, J. H. Magill.

Red or Yellow Pouter.

Cocks, 8.—1st, Chas. Massie; 2nd, Bell, Currier & Price.
Hens, 7.—1st and 2nd, Chas. Massie.

Pigmy Pouter.

Cocks, 3.—1st and 2nd, Bell, Currier & Price.
Hens, 2.—1st, Bell, Currier & Price; 2nd, H. B. Donovan.

Muffed Tumblers.

Cocks, 4.—1st and 2nd, V. Barber. *Hens*, 4.—1st and 2nd, V. Barber.

L. F. C. L. Tumbler.

Cocks, 4.—1st and 2nd, V. Barber. *Hens*, 3.—1st and 2nd, V. Barber.

S. F. Almond Tumbler.

Cocks.—No entries. *Hens*, 2.—1st, W. H. Reid; 2nd, Bell, Currier & Price.

S. F. Tumbler, A. O. V.

Cocks, 1.—1st, Bell, Currier & Price.
Hens, 2.—1st, W. H. Reid; 2nd, Bell, Currier & Price.

Red Barb.

Cocks, 1.—1st, Geo. J. White.
Hens, 2.—1st, Geo. J. White; 2nd, Bell, Currier & Price.

Black Barb.

Cocks, 3.—1st, Bell, Currier & Price; 2nd, Geo. J. White.
Hens, 2.—1st, Geo. J. White; 2nd, R. Henry.

A. O. S. C. Barb.

Cocks, 1.—1st, Bell, Currier & Price.
Hens, 2.—1st, Bell, Currier & Price; 2nd, Geo, J. White.

A. O. S. C. Trumpeter.

Cocks, 1.—1st, R. Henry. *Hens*, 2.—1st, R. Henry; 2nd, Chas. Massie.

Red or Yellow Jacobin.

Cocks, 7.—1st and 2nd, Chas. Massie. *Hens*, 8.—1st and 2nd, Chas. Massie.

WHITE JACOBIN.

Hens, 6.—1st and 2nd, R. K. Barker. *Cocks*, 7.—1st and 2nd, Chas. Massie.

A. O. S. C. JACOBIN.

Cocks, 8.—1st and 2nd, Chas. Massie. *Hens*, 8.—1st, Chas. Massie; 2nd, R. K. Barker.

RUNT.

Cocks, 1.—1st, M. T. Burn. *Hens*, 1.—1st, M. T. Burn.

ORIENTAL FRILL.

Cocks, 3.—1st, V. Barber; 2nd, Geo. J. White.
Hens, 4.—1st, V. Barber; 2nd, F. A. Woodward.

R. C. ANTWERP.

Cocks, 4.—1st and 2nd, A. Bunker. *Hens*, 4.—1st, A. Bunker; 2nd, W. H. Reid.

SILVER DUN ANTWERP.

Cocks, 3.—1st and 2nd, W. H. Reid. *Hens*, 2.—1st and 2nd, W. H. Reid.

WHITE FANTAIL.

Cocks, 7.—1st, R. K. Barker; 2nd, R. K. Barker. *Hens*, 7.—1st and 2nd, R. K. Barker

BLUE FANTAIL.

Cocks, 3.—1st, W. J. Thompson; 2nd, R. Henry.
Hens, 2.—1st, R. Henry; 2nd, W. J. Thompson.

A. O. S. C. FANTAIL.

Cocks, 4.—1st and 2nd, R. K. Barker. *Hens*, 7.—1st and 2nd, R. K. Barker.

RED OR YELLOW MAGPIE.

Cocks, 5.—1st, W. H. Reid; 2nd, Geo. J. White.
Hens, 7.—1st, W. H. Reid; 2nd, Geo. J. White.

A. O. C. MAGPIE.

Cocks, 4.—1st, L. Ridler; 2nd, W. H. Reid. *Hens*, 5.—1st and 2nd, L. Ridler.

SHOW HOMER.

Cocks, 3.—1st and 2nd, Bell, Currier & Price.
Hens, 2.—1st and 2nd, Bell, Currier & Price.

BLACK SWALLOW BARLESS.

Cocks, 2.—1st, A. W. Barton; 2nd, Chas. Massie.
Hens, 3.—1st, A. W. Barton; 2nd, Chas. Massie.

RED OR YELLOW SWALLOW BARLESS.

Cocks, 3.—1st, A. W. Barton; 2nd, Bell, Currier & Price.
Hens, 2.—1st and 2nd, A. W. Barton.

A. O. S. C. SWALLOW.

Cocks, 3.—1st, F. A. Woodward; 2nd, A. W. Barton.
Hens, 2.—1st, A. W. Barton; 2nd, F. A. Woodward.

DRAGOON.

Cocks, 4.—1st and 2nd, Geo. J. White.
Hens, 4.—1st, Geo. J. White; 2nd, Jno. G. Purser.

ARCHANGEL.

Cocks, 5.—1st, Geo. J. White; 2nd, W. H. Reid.
Hens, 4.—1st, W. H. Reid; 2nd, Geo. J. White.

NUN.

Cocks, 8.—1st and 2nd, A. W. Barton.
Hens, 7.—1st, C. Massie; 2nd, A. W. Barton.

African Owl.

Cocks, 5.—1st and 2nd, F. A. Woodward. *Hens*, 4.—1st and 2nd, F. A. Woodward.

English Owl, B. or Silver.

Cocks, 4.—1st and 2nd, Bell, Currier & Price.
Hens, 4.—1st and 2nd, Bell, Currier & Price.

A. O. C. English Owl.

Cocks 3.—1st and 2nd, Bell, Currier & Price.
Hens, 3.—1st and 2nd, Bell, Currier & Price.

A. O. V. Owl.

Cocks, 5.—1st, M. T. Burn; 2nd, Bell, Currier & Price.
Hens, 5.—1st, M. T. Burn; 2nd, Bell, Currier & Price.

Black Turbit.

Cocks, 3.—1st, Readwin & Steffler; 2nd, C. Massie.
Hens, 2.— 1st, R. Henry; 2nd, H. B. Donovan.

A. O. C. Turbit.

Cocks, 5.—1st and 2nd, Bell, Currier & Price.
Hens, 4.—1st, A. W. Barton; 2nd, Bell, Currier & Price.

A. O. St. Variety.

Cocks, 2.—1st, R. Henry; 2nd, Bell, Currier & Price.
Hens, 3.—1st, Bell, Currier & Price; 2nd, R. Henry.

Lop Ear Rabbit, S. C.

Bucks, 2.—1st and 2nd, Wm. Fox. *Does*, 2.—1st and 2nd, Wm. Fox.

A. O. V. Lop Ear Rabbit.

Bucks, 2.—1st and 2nd, Wm. Fox. *Does*, 2.—1st and 2nd, Wm. Fox.

Dutch Rabbit.

Bucks, 2.—1st and 2nd, Wm. Fox. *Does*, 2.—1st and 2nd, Wm. Fox.

A. O. V. Rabbit.

Does, 5.—1st, Wm. Fox; 2nd, W. W. Cutler. *Bucks*, 5.—1st and 2nd, Wm. Fox.

Belgian Hare.

Bucks, 4.—1st and 2nd, Wm. Fox. *Does*, 3.—1st and 2nd, Wm. Fox.

Canary, Scotch Fancy.

Cocks, 5.—1st and 2nd, F. W. Hodgkin. *Hens*, 3.—1st and 2nd, F. W. Hodgkin.

A. O. V. Canary.

Cocks, 5.—1st and 2nd, Grundy Bros.
Hens, 4.—1st, Grundy Bros.; 2nd, F W. Hodgkin.

DRESSED POULTRY

Pair Brahmas, 1903.—1st, 2nd and 3rd, L. C. Sage.
Pair Cochins, 1903.—1st, H. Wyatt & Son; 2nd and 3rd, Armstrong Bro.
Pair Langshans, 1903.—1st and 2nd, Armstrong Bros.; 3rd, R. McCurdy.
Pair Plymouth Rock Cockerels.—1st, K. McGill; 2nd and 3rd, Armstrong Bros.
Pair Plymouth Rock Pullets.—1st, 2nd and 3rd, Armstrong Bros.
Pair Wyandotte Cockerels.—1st, 2nd and 3rd, Armstrong Bros.
Pair Wyandotte Pullets.—1st and 2nd, Armstrong Bros.; 3rd, G. & J. Bogue.
Pair Minorcas or Andulusians, 1903.—1st and 3rd, J. H. Minshall; 2nd, Armstrong Bros.
Pair Leghorns, 1903.—1st and 3rd, Armstrong Bros.; 2nd, Scanlon Bros.
Pair Dorkings.—1st and 3rd, Armstrong Bros.; 2nd, Jas. McCormick.
Pair French or Orpingtons.—1st and 2nd, Armstrong Bros.; 3rd, J. W. Clark.
Pair Game, 1903.—1st, 2nd and 3rd, C. Stockwell.

Pair Javas, 1903.—1st, G. & J. Bogue.
Pair Hamburgs, 1903.—1st and 2nd, Wm. McNeil; 3rd, Armstrong Bros.
Best Pair.—K. McGill.
Pair Turkeys, any age, Male.—1st and 2nd, H. J. Woodrow & Sons; 3rd, A. McDougall & Son.
Pair Females.—1st and 3rd, Woodrow & Sons; 2nd, Scanlon Bros.
Pair 1903 Male.—1st and 3rd, H. J. Woodrow & Son; 2nd, Scanlon Bros.
Pair 1903 Females.—1st, Scanlon Bros.; 2nd and 3rd, H. J. Woodrow & Sons.

Best Pair.—H. J. Woodrow & Sons.
Pair Geese, White, 1903.—1st, Scanlon Bros.; 2nd, E. A. Hales; 3rd, A. McDougall.
Pair Geese, Colored.—1st, Scanlon Bros.; 2nd, A. G. H. Luxton; 3rd, Jas. McCormick.
Best Pair Geese.—Scanlon Bros.
Pair Ducks, White, 1903.—1st and 3rd, Geo. Fyfe; 2nd, I. T. Knight.
Pair Ducks, Colored, 1903.—1st and 2nd, I. T. Knight; 3rd, G. & J. Bogue.
Best Pair Ducks.—Geo. Fyfe.
Collections.—Six Asiatics, Armstrong Bros. Six Plymouth Rocks or Wyandottes, 1st and 3rd, Armstrong Bros.; 2nd, K. McGill. Six Minorcas, Andulusians or Javas, J. H. Minshall. Six English or French, 1st, Armstrong Bros.; 2nd, J. W. Clark; 3rd, Scanlon Bros. Six Games, 1st, C. Stockwell; 2nd, G. & J. Bogue. Six Leghorns or Hamburgs, 1st, Wm. McNeil; 2nd, Armstrong Bros.; 3rd, Scanlon Bros. Six Turkeys, 1st, H. J. Woodward & Sons; 2nd, Scanlon Bros. Six Geese, 1st, Scanlon Bros.; 2nd, F. Woodward & Sons; 3rd, E. A. Hales. Six Ducks, 1st, Geo. Fyfe; 2nd, Scanlon Bros.; 3rd, H. J. Woodward.
Doz. Eggs, White.—1st and 2nd, J. H. Minshall.
Doz. Eggs, Brown.—1st, J. D. Cowan; 2nd, W. J. Campbell; 3rd, R. J. Hall.
Pen of Four Utility Birds.—1st, Scanlon Bros.; 2nd, J. W. Clark; 3rd, Armstrong Bros.

KILLING CHICKENS, NON-PROFESSIONAL.

1st, H. Leavens; 2nd, Jas. Scanlon; 3rd, Mr. Monkman.

KILLING CHICKENS, PROFESSIONAL.

1st, Jas. Halliday.

LIST OF POULTRY SPECIALS.

To Exhibitor winning largest number of prizes.—Wm. McNeil.
For best collection of Poultry.—R. Oke.
Light Brahmas.—Best collection, Geo. A. Tossy; best cock, Geo. A. Tossy.
Dark Brahmas.—Best collection, L. C. Sage; best hen, L. C. Sage; best pullet, L. C. Sage.
Buff Cochins.—Best collection, A. W. Bell; best hen, A. W. Bell.
Partridge Cochins.—Best cock, R. Oke; best pencilled female, R. Oke.
Black Cochins.—Best pullet, Readwin & Steffler.
White Cochins.—Best cockerel, H. Wyatt & Son.
Langshans, Black.—Best collection, R. McCurdy; White, best collection, best cock, best hen, best cockerel, best pullet, W. J. Teale.
Asiatics.—Best collection, H. Wyatt & Son.
White Plymouth Rocks.—Best collection, Thos. Rice; best hen, Natchez Poultry Yards; best cock, Thos. Rice; best 2 cockerels and 2 pullets, Thos. Rice; Silver Cup, Natchez Poultry Yards; Silver Medal for best Novice pair, A. G. Brown; Silver Medal for best collection, Daly & Dill; Honor Badge for best collection, Natchez Poultry Yards; Honor Badge for best Novicecollection, Daly & Dill.
Barred Plymouth Rocks.—Bertram Trophy, I. K. Millard; Silver Medal, N. Cosh; for best cock, best hen, I. K. Millard; for best cockerel, best pullet, N. Cosh.
Buff Plymouth Rocks.—Best cock, J. R. Boyce; best hen, F. W. Krouse; best three cockerels, best pullet, J. R. Boyce; Silver Medal, J. R. Boyce.
Barred Plymouth Rock Novice.—Best cock, I. T. Knight; best hen, J. S. Sterling; best cockerel, J. R. Boyce; best pullet, Jas. McCormick; best cock and two hens, J. S. Sterling.
Golden Wyandottes.—Best cock, best hen and best cockerel and pullet, F. E. Wray.
Silver Wyandottes.—Best collection, Jas. Arthur; best hen, Readwin & Steffler; best cockerel, best cockerel and pullet, Jas. Arthur; best pullet, G. & J. Bogue.
Black Wyandottes.—Best cockerel, R. Dinner; best cockerel and pullet, R. Oke.
Buff Wyandottes.—Best cock, A. W. Graham; best hen, best cockerel, best pullet, best two pullets, best collection, Rev. S. T. Bartlett; best display, Rev. S. T. Bartlett.
White Wyandottes.—Best collection, Chas. Massie; best cockerel and pullet, J. S. Martin; whitest pullet with red eyes, J. A. Carroll; best cock, C. Massie; best hen, J. A. Carrol; best cockerel, R. B. Millard; best pullet, J. S. Martin; *offered by*

White Wyandotte Club, for best cock, 1st and 2nd, C. Massie; 3rd, J. S. Martin; for best hen, 1st, J. A. Carroll; 2nd, Chas. Massie; 3rd, Wm. Wilson; for best cockerel, 1st and 3rd, R. B. Millard; 2nd, Wm. Wilson; for best pullet, 1st, J. S. Martin; 2nd, N. T. Kettlewell; 3rd, J. A. Carroll.

Partridge Wyandotte.—Best collection, T. H. Scott.

Dominiques.—Best collection, M. T. Burn; best bird in class, G. & J. Bogue.

Black Javas.—Best cockerel and pullet, best cock, best hen, best cockerel best pullet, R. Oke.

Mottled Java.—Best cockerel and pullet, R. Oke.

R. C. White Leghorns.—Best collection, R. Oke; best cockerel, R. Oke; best bird in class, W. J. Bell.

S. C. White Leghorns.—Best collection, F. Wales; best cock, W. J. Fullerton; best hen, W. J. Fullerton; best male, best female, best cockerel, best two pullets, best three pullets, F. Wales.

Black Leghorns.—Best cock, F. P. McDonnell; best hen, Grundy Bros.; best cockerel, Readwin & Steffler; best pullet, Readwin & Steffler.

R. C. Brown Leghorns.—Best collection, W. C. Wilson & Sons; best cock, Wm. Cadman; best hen, best cockerel, W. C. Wilson & Sons; best pullet, Wm. Cadman.

S. C. Brown Leghorn.—Best cockerel, G. G. Henderson; best three cockerels and best three pullets, H. F. Becker; Silver Medal, H. F. Becker; Silver Medal for best colored female, G. G. Henderson.

Buff Leghorns.—Best cock and cockerel, N. K. Cornwall; best cock, N. K. Cornwall; best two hens, J. W. Dundas; best cockerel, N. K. Cornwall; best two cockerels, N. K. Cornwall; best pullet, best two pullets, J. A. Harron.

Spanish.— Best collection, G. & J. Bogue.

Black Minorcas.—Best collection, best cock, best hen, best cockerel, best pullet, J. H. Minshall.

White Minorcas.—Best cockerel and best pullet, H. Dinner.

Andulusian.—Best collection, N. Cosh; best cock, hen, cockerel and pullet, N. Cosh.

Mediterranean.—Best collection, J. H. Minshall.

Golden Spangled Hamburg.—Best collection, Wm. McNeil.

Silver Spangled Hamburg.—Best collection, R. Oke.

Golden Pencilled Hamburg.—Best collection, R. Oke.

Silver Pencilled Hamburg.—Best collection, R. Oke.

Hamburgs.—Best collection, R. Oke.

Black Hamburg.—Best collection, Wm. McNeil.

Black Red Game.—Best cock, Walter Butler; best hen, Jas. Philpot; best cockerel, best pullet, Walter Butler.

Brown Red Game.—Exhibitor winning the largest No. of prizes, Tyson & McMaster; exhibitor winning largest No. of prizes in Br., Red and Pyle Bantams, Tyson & McMaster.

Duckwing Game.—Best cock and hen, W. Barber.

Pyle Game.—Best cock and cockerel, Tyson & McMaster; best hen, T. Sherlock; 2nd prize hen, W. Barber; best pullet, T. Sherlock.

Indian Game.—Best cock and hen, best cock, best hen, J. A. Carroll.

Black Red Game Bantams.—Cock, Chas. R. Crowe; best hen, Chas. R. Crowe; best cockerel, best pullet, Chas. R. Crowe.

Brown Red Game Bantams.—Best hen, J. Phillpots; best pullet, H. R. Tozer.

Duckwing Bantam.—Best hen, W. Barber.

Pyle Game Bantams.—Best cock, best hen, best three pullets, Tyson & McMaster

Birchem Game Bantams.—Best cockerel, best pullet, H. B. Donovan.

Golden Sebright Bantams.—Best cock, hen, cockerel and pullet, R. Oke.

Silver Sebright Bantams.—Best cock, hen, cockerel and pullet, R. Oke.

Black R. C. Bantam.—Best cock, hen, cockerel and pullet, Wm. McNeil.

White Cochin Bantams.—Best cock, hen, cockerel and pullet, Wm. McNeil.

Buff Cochin Bantams.—Best cock, hen, cockerel and pullet, Wm. McNeil.

Black Cochin Bantams.—Best cock, hen, cockerel and pullet, T. J. Kiley; best hen and pullet, T. J. Kiley.

Partridge Cochin Bantams.—Best cock, R. & I. Graham; best bird in class, A. W. Bell; smallest cock, hen, cockerel and pullet by weight, A. W. Bell.

White Booted Bantam.—Best cock, hen, cockerel and pullet, T. J. Kiley; best smooth-faced cock, hen, cockerel and pullet, W. J. Teale.

Black Tailed Japanese Bantams.—Best cock, hen, cockerel and pullet, H. B. Donovan.

White Tailed Japanese Bantams.—Best cock, hen, cockerel and pullet, W. McNeil.

Polish Bantams.—Best cock, hen, cockerel and pullet, R. Oke.

Silver Grey Dorkings.—Best hen, A. Bogue; best cockerel, A. G. H. Luxton.

Colored Dorking.—Best collection, A. Bogue.

White Dorkings.—Best collection, A. Bogue.

Buff Orpingtons.—Best collection, N. Cosh; best cock, hen, cockerel and pullet, N. Cosh; best cock and cockerel, N. Cosh; best cockerel, N. Cosh; best cock, hen, two cockerels and two pullets, N. Cosh; best hen, T. F. Kingsmill; best cockerel, N. Cosh; best pullet, T. F. Kingsmill; best White Orpington Cockerel, H. A. Hoffman; Challenge Cup, N. Cosh. *Offered by Canadian Buff Orpington Club*: For best cock, 1st, Wm. Cadman; 2nd, W. C. Hugh; for best hen, 1st, S. W. D. Frith; 2nd, W. C. Hugh; for best cockerel, 1st, J. McKay; 2nd, J. W. Clark; for best pullet, 1st and 2nd, W. K. Kerr.

Polands.—For best collection, A. Bogue; best collection Golden, A. Bogue: best collection Silver, M. T. Burn; best collection White, A. Bogue; best collection Golden Bearded, Wm. McNeil; best collection Silver Bearded, Wm. McNeil; best collection White Bearded, Wm. McNeil; best collection Buff Laced, Wm. McNeil; best collection Polands, Wm. McNeil.

Houdans.—Best collection, D. C. Trew; best hen, D. C. Trew.

Creve Coeurs.—Best cockerel and pullet, R. Oke.

LaFleche.—Best cockerel and pullet, R. Oke.

Sultan.—Best hen, cock, cockerel and pullet, R. Oke.

Silky.—Best cock, hen, cockerel and pullet, Wm. McNeil; best cock, Wm. McNeil; best hen, Wm. McNeil; best cockerel, Wm. McNeil; best pullet, Wm. McNeil.

Columbian Wyandottes.—Best cockerel and pullet, T. H. Scott.

Silver Pencilled Wyandottes.—Best cockerel and pullet, Jos. Hubert; for best pullet, Jos. Hubert.

Turkeys, Bronze.—Best cock, 1 year old, W. H. Beattie; for heaviest cockerel, A. McDougall & Son; 2nd, W. J. Bell; for heaviest pullet, Jas. Ford & Sons; 2nd, A. McDougall & Son.

Turkeys, White.—Best collection, W. H. Beattie.

Narragansett Turkeys.—Best collection, A. G. H. Luxton.

Toulouse Geese.—Best pair, A. Bogue; best young Gander, Geo. Colwell; best young Goose, Geo. Colwell.

Bremen Geese.—Best collection, Geo. Colwell.

Ducks, Aylesbury.—Best pair, old, A. Bogue.

Ducks, Rouen.—Best collection, Geo. Colwell.

Ducks, Pekin.—Best collection, A. Bogue.

Ducks, Indian Runners.—Best old Drake, Jno. Colson; best old Duck, Jno. Colson.

Ducks, Cayuga.—Best collection, I. T. Knight.

Ducks, Colored Muscovy.—Best 4 old and young, I. T. Knight.

Pheasants.—Best collection, R. Goldie.

Pigeons.—Best collection, Carriers, Geo. White: Pouters, Bell, Currier & Price; Pigmy Pouters, Bell, Currier & Price; Muffed Tumblers, V. Barber; L. F. C. L. Tumblers, V. Barber; D. F. Tumblers, Bell, Currier & Price; Barbs, Geo. J. White; Trumpeters, C. Massie; best pair Yellow Jacobins, C. Massie; best pair White Jacobins, C. Massie; best pair A. O. S. C. Jacobin, C. Massie; best collection Jacobins, C. Massie; Oriental Frills, V. Barber; Fantails, R. K. Barker; Magpies, Geo. J. White; Show Homers, Bell, Currier & Price; Swallows, A. W. Barton; Dragoons, Geo. J. White; Archangels, Geo. J. White; Nuns, A. W. Barton; African Owl, F. A. Woodward; English Owls, Bell, Currier & Price; best Owl cock, F. A. Woodward; A. O. V. Owls, M. T. Burn; best Turbit cock, Readwin & Steffler; Turbits, Bell, Currier & Price; A. O. V., M. T. Burn.

Rabbits.—Best collection, Wm. Fox.

Belgian Hares.—Best collection, Wm. Fox.

Cage Birds.—Best Scotch Fancy Cock, F. W. Hodgkin.

THE ONTARIO PROVINCIAL WINTER FAIR BOARD.

ANNUAL MEETING OF BOARD OF DIRECTORS.

The annual meeting of the Provincial Winter Fair Board was held in the Palmer House, Toronto, on February 6th, 1904, at 2 p.m., President A. W. Smith in the chair.

PRESIDENT'S ADDRESS.

By A. W. Smith, Maple Lodge.

I would just say that I feel a great deal of satisfaction in the state in which we find our Winter Fair, the progress we have made for a number of years, and the standing we have taken, not only in our own Province and Dominion, but all over the continent. Our Winter Fair is pointed to by people who are largely interested in agriculture all over the continent. I have had remarks made to me by very prominent agriculturists on the other side as to the high standing our Winter Fair has taken in the matter of pushing education directly along the lines that we have been endeavoring to follow. I believe we are the founders in that respect. I believe we still lead by a great deal, although there are a number of others whose standing as an exhibition is very much greater than ours—I mean by that whose magnitude is greater than ours—but in that one particular we stand clearly ahead. I am very proud of this, and I am sure every member of the Board has some feeling in regard to it, and it should be an incentive to us in taking advantage of every opportunity we have in maintaining that lead.

The report and financial statement of the Secretary-Treasurer were received and adopted.

Mr. F. W. Hodson, Dominion Live Stock Commissioner, was called upon to address the meeting, and he outlined the result of his official visit to St. Louis, and also explained to the breeders the exact condition of the regulations existing between the United States and Canada, and produced letters from the United States Department of Agriculture substantiating the same.

On motion of John Bright, seconded by G. B. Hood, it was resolved.: "That the Board of Directors of the Provincial Winter Fair, in annual meeting assembled, endorse the action of our representatives at the meeting held in the Rossin House, November 11th, 1903, and also the position token by the Dominion Live Stock Commissioner in relation to the St. Louis Exposition."

Moved by William Jones, seconded by James Gardhouse : "That this Board approves of the desirability to establish a National Live Stock Association, and the following delegates be our representatives : "

"Delegates—A. W. Smith, Maple Lodge ; G. B. Hood, Guelph ; A. P. Westervelt, Toronto."

OFFICERS FOR 1904.

Honorary President..... .....F. W. Hodson, Dominion Live Stock Commissioner, Ottawa.
President .... A. W. Smith, Maple Lodge.
Vice-President ....Arthur Johnston, Greenwood.
Secretary-Treasurer .... A. P. Westervelt, Toronto.

Committees.

Executive: A. W. Smith, Maple Lodge; F. W. Hodson, Ottawa; A. P. Westervelt, Toronto; Arthur Johnston, Greenwood; G. W. Clemons, St. George; Jas. Tolton, Walkerton; Wm. Jones, Mount Elgin; Prof. G. E. Day, Guelph; Wm. McNeil, London; D. G. Hanmer, Mt. Vernon; J. H. Saunders, London; Col. J. A. McGillivray, Uxbridge; G. C. Creelman, Guelph; J. M. Gardhouse, Weston.

Cattle: A. W. Smith, Henry Wade, Toronto; Arthur Johnston, G. W. Clemons, John Bright, Myrtle; A. F. H. Jones, Guelph; J. M. Duff, Guelph; John M. Tyson, Guelph; John McCorkindale, Guelph; Prof. G. C. Creelman, Guelph; James Bowman, Guelph.

Sheep: Jas. Tolton, Walkerton; John Jackson, Abingdon; A. W. Smith, Col. J. A. McGillivray, J. M. Gardhouse, Highfield; Jas. Millar, Guelph; Wm. Dryden, Brooklin; John T. Gibson, Denfield; R. H. Harding, Thorndale; Wm. Laidlaw, Guelph.
Swine: Wm. Jones, Geo. Green, Fairview; Prof. G. E. Day, Prof. Cumming, Guelph; D. C. Flatt, Mill Grove; G. B. Hood, Guelph; J. E. Brethour, Burford; Thos. Teasdale, Concord.
Dairy: Prof. H. H. Dean, Prof. G. E. Day, G. W. Clemons, Henry Wade, Prof. G. C. Creelman, J. G. Clark, Ottawa; John McKee, Norwich.
Poultry: Wm. McNeil, London; A. W. Tyson, Guelph; F. W. Hodson, W. R. Graham, Guelph; Allen Bogue, London; F. C. Hare, Ottawa.
Reception: Hon. John Dryden, F. W. Hodson, A. W. Smith, Prof. G. C. Creelman, Guelph; Mayor John Hamilton, A. F H. Jones, J. M. Duff, Arthur Johnston, Col. J. A. McGillivray.
Superintendent of Buildings: D. J. Hanmer, Mt. Vernon.
Assistant Superintendent: J. H. Saunders, London.

JUDGES.

Moved by Wm. Jones, seconded by John Bright: "That the appointment of judges be left in the hands of the Executive Committee." Carried.

Moved by A. W. Tyson, seconded by J. M. Gardhouse: "That the appointment of poultry judges be left to the Poultry Committee; also that the Committee in charge of Rings be left to the Executive." Carried.

REVISION OF RULES.

Mr. Westervelt suggested that hogs shown in class 40 be grouped, as shown in classes 37 and 38, and on motion of Arthur Johnston, seconded by Jas. M. Gardhouse, it was resolved: "That this matter be left in the hands of the Executive."

J. E. Brethour suggested in class 42 it be made "Special" instead of "Sweepstakes."

A short discussion took place regarding the registration of swine, and it was moved by Wm. Jones, seconded by F. W. Hodson: "That the rules regarding the registration of swine remain as they are." Carried.

Moved by G. B. Hood, seconded by J. M. Gardhouse: "That it be left in the hands of the Executive to decide the limit of weight for export steers." Carried.

Moved by Arthur Johnston, seconded by Wm. McNeil: "That cattle in the beef cattle classes be classified according to the sections and classes in the prize list." Carried.

Moved by Arthur Johnston, seconded by John Bright: "That the straw be bought and supplied in bales, and that the arrangement in regard to supplying the straw be left in the hands of the Executive Committee." Carried.

The President suggested they should have a championship prize for the best animal in the beef classes, and on motion of John Bright, seconded by Jas. M. Gardhouse, it was resolved: "That there be a Sweepstake prize of $25 given for the best beef animal, and that the prize to be awarded in this class be left in the hands of the Executive."

Moved by John Bright, seconded by J. M. Gardhouse: "That the adjustment of the prize list be left in the hands of the Executive." Carried

NEW BUSINESS.

A letter was read from Mr. John McKee, of Norwich, and G. B. Hood moved, seconded by A. W. Tyson: "That this letter of Mr. McKee's be left to the Executive to deal with." Carried.

It was suggested that they should have a door in the dairy cattle department, and on motion of Wm. Jones, seconded by F. W. Hodson, it was resolved: "That this matter be left to the Executive."

Mr. R. H. Harding suggested it should be brought to the notice of the Grand Trunk that there should be a better unloading platform, and Mr. Westervelt stated he thought the railway people would put in another platform before another year.

Moved by F. W. Hodson, seconded by Wm. O'Neil: "That Mr. Westervelt's salary be increased from $350 to $500 per annum." Carried unanimously.

Financial Statement Ontario Provincial Winter Fair.

Receipts.

Entry Fees		
Poultry	$1273.00	
Cattle	463.50	
Sheep	261.00	
Swine	336.75	
Dressed Poultry	67.25	
		$2401.50
Gate Receipts		1998.25
Interest		61.75
Grants from Associations.		
Cattle Breeders' Association	$2116.00	
Sheep Breeders' Association	1315.00	
Swine Breeders' Association	1655.00	
Western Ontario Poultry Association	1775.75	
		6861.75
Advertisements in Prize List		420.00
Swine Carcasses sold		1134.12
Dressed Poultry sold		196.92
Matthews' Packing Co.		25.00
Ingersoll Packing Co.		50.00
Whyte Packing Co.		50.00
Wm. Davies' Co.		100.00
Park Blackwell Co.		50.00
Collingwood Meat Co.		50.00
Holstein Specials		100.00
Refund Freight		7.95
Balance Entry Fees, 1902		2.00
Refund on Carcasses, 1902		26.65
Milk sold O.A.C., 1902		24.18
Eastern Dairyman Association, 1902		50.00
Dominion Government Grant		350.00
Sale of Catalogues		22.00
Milk sold		9.51
Sundries		7.23
		$13,998.81

Expenditures.

Executive and Committees		$204.35
Postage and Stationery		321.64
Printing and Advertising		775.04
Expenses Judges		225.10
Expenses Public Meetings		71.00
Telegraph, Telephone, Express, etc.		35.57
Prizes, Cattle Department	$2,116.00	
Sheep Department	1,315.00	
Swine Department	1,655.00	
Dressed Poultry Department	268.00	
Poultry Department	1,777.75	7,131.75
Secretary's Salary		350.00
Auditor		5.00
Lighting Fair Building, 1902	207.50	
Lighting Fair Building, 1903	210.44	417.94
Typewriting and Office Work		524.88
Freight on Coops		14.00
Police 1902 and 1903		50.00
Dressed Carcasses paid for		1,134.14
Dressed Poultry paid for		216.10
City of Guelph as per agreement		260.00
Expenses block test		11.00
Reporting Meetings		54.00
Entry fees refunded		17.75
Fuel for furnace, 1902, $98; 1903, $62		160.00
Refunds to exhibitors coming over 100 miles		23.60
Straw		53.32
Repairs, etc.,		
Heating apparatus	$71.27	
Lumber, hardware, wages for repairing and alterations to dairy, stable, board room and office	$130.42	201.69
Milk sold, 1902		20.00
Essays on exhibits		25.20
General wages account		363.25
Poultry entry fees		1,273.00
Miscellaneous items		31.25
Cash on hand to balance		38.24
		$13,998.81

Audited and found correct,

[illegible] M. Dyer.

A. W. Smith, President.
A. P. Westervelt, Secretary-Treas.

EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW

Under the Management of the

EASTERN ONTARIO POULTRY ASSOCIATION.
DOMINION CATTLE BREEDERS' ASSOCIATION.
DOMINION SWINE BREEDERS' ASSOCIATION.
DOMINION SHEEP BREEDERS' ASSOCIATION.

OFFICERS FOR 1904.

President .... J. C. SMITH, Hintonburg.
Sec.-Treasurer ....A. P. WESTERVELT, Parliament Buildings, Toronto.

COMMITTEES.

Management: The President and Secretary: J. G. CLARK, Ottawa; F. W. HODSON, Ottawa; F. H. GISBORNE, Ottawa.

Executive: J. C. SMITH, ARTHUR JOHNSTON, Greenwood; J. G. CLARK, N. F. WILSON, Cumberland; G. B. HOOD, Guelph; R. CLARK, Ottawa; R. H. HARDING, Thorndale; J. A. RICHARDSON, South March; H. J. WHITTAKER, North Williamsburg; FRANCIS H. GISBORNE, GEO. HIGMAN, Ottawa; F. J. BLAKE, Almonte.

Cattle: ARTHUR JOHNSTON, J. G. CLARK, N. F. WILSON, JOHN D. REID, Ottawa; G. C. CREELMAN, Toronto; ALEX. MCLEAN, Carleton Place; W. C. EDWARDS, Rockland.

Sheep: R. H. HARDING, J. A. RICHARDSON, H. J. WHITTAKER, R. R. SANGSTER, Lancaster; C. W. YOUNG, CORNWALL.

Swine: G. B. HOOD, J. C. SMITH, R. CLARK, J. H. GRISDALE, Ottawa.

Dairy: J. A. RUDDICK, Ottawa; G. G. PUBLOW, Ottawa; R. G. MURPHY, Elgin.

Poultry: F. H. GISBORNE, G. H. HIGMAN, F. J. BLAKE, F. C. HARE, Ottawa; W. R. GRAHAM, Guelph.

Reception: F. W. HODSON, Ottawa; AID. ELLIS, ALD. HOPEWELL, MAYOR COOK.

Superintendent ....D. G. HANMER, Mt. Vernon, Ont.

Poultry Superintendent .... R. E. MCKINSTREY, Ottawa.

LECTURES DELIVERED AT THE EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW.

ADDRESS.

By Hon. Sydney Fisher, Minister of Agriculture.

(Following Prof. Dean's address on "The Value of Individual Cow Records." See page 66.)

The subject that Prof. Dean has spoken upon this afternoon is one of the most important, so far as the progress of the dairy industry is concerned, that could possibly be thought of. All of you who are dairymen are acquainted with the name of Governor Hoard, of Wisconsin, the proprietor of "Hoard's Dairyman," and many of you have had an opportunity to listen to his humorous but always pointed and instructive addresses. A few years ago Governor Hoard inaugurated what he called a "Cow Census." He was a large creamery owner and operator, and desired to get his patrons to send more milk to his creameries. He knew from observation that among the cows his patrons owned were a large number that were doing very little, and another large number that were doing a great deal, and he thought it would be in his interest as a creamery owner to induce his patrons to find out which of their cows were paying for their keep and which were not. He therefore organized almost the entire county, and arranged that a systematic test should be made in the manner Prof. Dean has described. The results of his investigations, which were afterwards published in Hoard's Dairyman, were extraordinary. He

found that, in some of the herds tested, as high as 20 per cent of the animals were not making any money for their owners, but that there were others that were making a large amount. Until this work was inaugurated, these men had little idea which cows were making money for them and which were not.

This matter is of such importance to the dairymen of Canada that I think it would be well to consider whether some means cannot be devised—some assistance given or organization effected—which would induce the dairymen all over the country to adopt this plan. It seems to me that our factory system provides us with a simple and easy machinery by which this can be done. Let the patrons of each factory form themselves into an association for testing their cows (as they are already formed into an association for factory purposes), and get up a little rivalry amongst themselves to ascertain which member has the most cows in his herd producing, say, 5,000 pounds of milk per year. I am putting it at a very moderate figure. We know that many of our cows produce seven, eight, nine and ten thousand pounds, but taking the average of all the cows, even through the Province of Ontario, where, perhaps, they are better selected and better cared for than elsewhere, I venture to say that the average production does not reach over 4,000 pounds per year.

Mr. Grisdale: The average production of the cows in Canada is 2,300 pounds in the year.

Hon. Mr. Fisher: Yet we find a selected cow at the Ontario Agricultural College producing 10,000 per year. I do not believe there is a dairyman in the room to-day but has some cows in his herd that are producing double as much milk as other cows in the same herd. I venture to say that an investigation into this condition of affairs and a careful calculation as to what are the actual facts in the matter will incite any dairyman to improve his herd by rejecting the poor cows and selecting better ones. To-day he is treating them all alike, and while some are making money for him, the others are eating up the money that the profitable cows make.

One point Prof. Dean alluded to which is an important one, namely, How are we going to get good cows if we are obliged to discard a large proportion of the cows we now have? I venture to say that the only safe way for a dairyman to get good cows is to breed them himself. When you buy a cow, as a general rule, you do not know what you are getting, and you cannot buy the best cows—they are not for sale. The best cows are kept by their owners, if the owners have any sense. But if you are to breed your own cows, how can you be sure of producing a good animal unless you know what the mother of the calf is capable of in the way of milk production, and also what the milk record was of the dam of the bull that sired that calf? Yet it is only through a knowledge that these animals were satisfactory producers of milk that you have any assurance that the heifer calf you raise will turn out to be a good cow. I venture to say that any dairyman who will for three or four years keep such a record will be able to produce first-rate heifer calves which will make first-rate cows. The only other point he must attend to is to secure a first-rate bull, and he can do that by purchasing from some herd where this recording system is carried on.

Even well bred animals have to be tested and a record kept. We go a great deal on pedigree, but I'm afraid that the registration of pure bred animals is not sufficient to guarantee that an animal is of high quality. The breeders, too, ought to keep a record. If they do, and if they discard the inferior animals as shown by that record, they will very soon establish a reputation which will insure a good market for the progeny they have to sell. I consider this matter of so much importance in the interest of dairying that I have asked Mr. Hodson, the Live Stock Commissioner, to try to work out some system whereby recording of this kind might be carried on among the dairymen, and I hope that before another year comes around a system will be devised whereby each dairyman will be incited and helped to keep such records as Prof. Dean has described. I want to see the burden of doing so made just as light as is compatible with good results. Prof. Dean

weighs the milk every day, but while this is desirable in some respects, it is not essential in order to obtain fairly accurate information as to the milk production. In my own herd we weigh the milk once a week, and from tests we have made, we find that the results at the end of the year are practically the same as if we had weighed it each day. I would suggest that anyone who wants to adopt this system should take three days' milkings in the month, multiply the results by ten, and you will get practically the returns of the cow for the month. As the average month has thirty days. The principle of the thing is the important point; the details are of minor value. The trouble and labor taken in working out the system will improve the dairyman just about as much as a study of the results will improve his herd.

Mr. G. C. Creelman, Chairman: We ought all to congratulate ourselves in having at the head of the Department of Agriculture a practical farmer and a practical dairyman like Mr. Fisher. In the past it was not always considered necessary that the representative of the farmers should be in practical sympathy with his constituency, but it is growing more and more to be realized and recognized that the farmers are in truth the backbone of the country, and should be represented by one whose interests are identical with their interests. Mr. Fisher is not only a good dairyman and farmer, but he uses good judgment in the selection of men to take charge of the branches of the Department which he controls. Mr. Grisdale, the Agriculturist at the Experimental Farm, is one of these, and I have much pleasure in introducing him to take up the farther discussion of this subject.

Mr. J. H. Grisdale, Agriculturist, Central Experimental Farm, Ottawa: So much has already been said on this subject, that some may consider the topic almost exhausted, but I think we might discuss it for hours, and then do no more than justice to its importance. There is unlimited room for improvement in the dairy industry, and the keeping of the records suggested is one of the means that will help to bring it about. For the past four or five years I have been trying to induce the farmers to keep such records. To begin with, we ruled sheets and sent them out to farmers in the neighborhood. After a time we induced the powers that be to allow us to print these sheets. These forms are now available, on application to the Central Experimental Farm, Ottawa, to all who wish to keep these records.

The keeping of these records is so easy when you have a spring balance that it will certainly pay the farmer to get one. To procure a spring balance has been somewhat difficult hitherto, but they may now be obtained from William Ewing & Co., Seedsmen, Montreal. It will be remembered that these balances are not legal—that is to say, you cannot sell products by them—but they are exceedingly useful in the keeping of these records, as when a pail of milk is hung upon them, they indicate the net weight of the milk regardless of the weight of the pail, and indicate the weight at once without any shifting of the weights on any balance rod.

Mr. Fisher stated that weighing the milk on three days in each month would be found sufficient. That is true in a way; that is to say, you will know how much your cows are producing; but a more frequent testing is a help in other directions. To illustrate what I mean, I will mention an incident which happened not fifty miles from here. A farmer who was keeping a record of his cows found one morning that they had broken into the clover field during the night, and had eaten all they could take. He was astonished to find that the cows had produced ten pounds of milk extra during the succeeding twenty-four hours. After thinking the matter over, he was forced to the conclusion that he was not feeding his cows enough. He accordingly increased the ration, and thereby obtained an increased flow of milk. Many others have told me what an incentive the records have been to their men, or to the members of the family where each milks a certain number of cows, by creating a rivalry as to whose cows will give the largest returns. There are many things to be found out from keeping a record, such as indications of approach of derangement in the health of the animals, etc., but the most important thing of all is the possibility of increasing the average yield of milk from our cows.

As stated, the average yield of milk per cow in Canada is only 2,300 pounds. A record enables us to watch the effect of any given ration on the milk production. If we do not know the effect of the rations fed to our cows, how are we going to regulate their feed, or how are we to know which cows respond to feeding. I find that by keeping a record we can regulate the ration so as to make up the most profitable kind of ration. It is not always the biggest ration that is the most profitable ; you must study the individuality of the cows in the herd, and by feeding according to the milk records you will be able to give the cows a ration that will cause them to give the largest flow of milk. To be profitable, a cow should do all she is able to do with safety. Whether this is being done or not, and whether the cows are being fed so as to keep up the flow of milk cannot be ascertained without keeping a record.

To give you an instance of what this system will do in improving the value of the herd as regards milk production, I will quote one of the many that have come under my observation. There is a young man—he happens to be in the audience to-day—who started out three or four years ago with a herd of twelve cows. He sent their milk to the cheese factory, and they yielded him about $30 per head per year. We were talking the matter over, and I asked him why he did not keep a record of his cows. He agreed to to do so, and I supplied him the necessary forms. At the end of the first year after he began to keep the record, he told me that his cows had produced about $45 per head for the year. He had brought about the improvement by studying the returns from his individual cows and feeding them accordingly. He was also able to pick out the worst cows ; these he disposed of, and gradually replaced them with better cows bought from his neighbors, who perhaps did not know their real value. He continued this process of selection until, in 1902, his returns were $60 per cow. In 1903 he had thirteen cows, and from these he got $818 worth of milk, which is practically $70 per head. That indicates what a man can do by keeping a record of his cows and studying it. I do not maintain that the record itself is responsible for the increase, but what I do say is that if he had not kept a record, he could not have reached that high standard, because the record was the thing that guided him and let him know what he was doing, and unless we know that, we cannot make the needed improvement.

Let me refer to our own experience at the Central Experimental Farm. Five years ago we had there a herd that was fed on a good ration, but not much judgment was used as to the quantity of feed given to each cow ; they were all treated very much alike. It was supposed that eight pounds of meal was the right amount for a cow in full flow of milk, and each cow was given that quantity, and it was decreased as the flow of milk lessened. We were feeding that ration in 1899, and keeping a record of the results. In 1900 every cow was fed a ration based on the experience of the previous year ; some were fed more than eight pounds, some less. By studying the feeding card and the returns of the previous year, and comparing them with the returns in 1900, we were able to increase the yield of milk by one thousand pounds per cow ; that is to say, from an average return per cow (grade cows) of 4,500 pounds in 1899 we increased to 5,500 pounds per cow in 1900. I do not attribute the increase so much to careful feeding as to the keeping of the record, because without that record we should not have been able to feed properly. This is the important point—it is a guide to the man who is looking after the cow in the feeding and care of the cow ; it is a help to him all the time.

We have been recommending breeders of pure bred cattle to keep a record of their animals, and in this district a number of breeders have been induced to adopt the system. In a recent issue of the Farmers' Advocate you will find the record of one of these herds. This man has a really good herd. Some of his cows give upwards of 12,000 pounds of milk, while others, of course, do not give nearly as much. Consider the advantage this man has when he goes to sell his stock if he is able to say to an intending purchaser, Here a calf from a cow that last year yielded ten or twelve thousand pounds of milk. Every year we receive a large number of requests for pure bred dairy stock from different parts of Canada, and I regret to say that until very recently very few enquired as to the

capacity for milk production of the dam or of the females on the sire's side, the only inference being that they were thinking very little of the milk pail in making their purchases. During my last trip through Quebec I strongly urged the importance of this upon the farmers, and I think that our farmers generally are waking up to its importance. If so, it will compel breeders to keep records of their herds so that they may be able to quote the records of the ancestry of the young stock bulls that are being spread through this country. Upon the yielding power of their cows depends the livelihood of those engaged in the dairy business.

Q.: Where did the man who raised the standard of his cows to $70 send his milk ?

Mr. Grisdale : I have his report here. He sent $601.46 worth to the cheese factory, $183 worth to the city, after deducting freight charges, and he made 120 pounds of butter at 24 cents. Besides that, he furnished milk to the house, and raised three calves on skim milk. If he had sent only $601 worth to the cheese factory, he would not have been doing badly in comparison with the average farmer, who, as I happen to know, does not get $30 per cow per annum from all sources. Unless we can realize $50 per cow we are not fit to be dairymen, and ought to get out of the business. We sold our butter at 20 cents last year, and our cows brought us $73 per cow. We have an advantage over most, however, in the fact that our cows are nearly all pure bred, and have been selected for their milking qualities ; but the young man I have referred to with grade cows is able pretty nearly to equal us. I think the grade cow is quite equal to the average pure bred, if not superior.

Q.: How long would these cows be milked ?

A.: During the whole period of lactation—about ten months.

Mr. G. C. Creelman : We have all listened to these addresses, and now the pertinent question arises, What are we going to do about it ? No doubt the majority will go back home and nothing will be done. Records of this kind have now been kept for some time ; the matter is past the experimental stage ; its importance has been preached in season and out of season, and yet a very small proportion of our farmers have seen the necessity for adopting the system. It seems to me we ought not to be so slow in taking up things that have already been proven. I can understand that it is not wise to be too quickly adopt every innovation that comes along, but when a thing has been thoroughly tested, and realized to be a great improvement—when a Minister of Agriculture for the Dominion gets up and says he is using it in his own herd, when a man like Prof. Dean says he has carried it on for thirteen years—when Mr. Grisdale says that the yield of his cows was increased 1,000 pounds per head during the first year, and quotes from reports from farmers living in your own midst who have adopted it with equally beneficial results —it seems to me that we have sufficient justification for its general adoption. It seems to me that when farmers work as hard as they do, when hired help is so scarce, and withal of so little account, you should realize the necessity of going one step further, and buying a balance at the cost of one dollar, and taking the time to test the milk, so that you may know which cows are paying their board and which are eating their heads off. It seems to me we are not asking too much in desiring every farmer to adopt the system, and thereby double the product of the cows of this country and increase his own profits. It is deplorable that it takes the farmers generally so long to adopt improvements of this kind. If you are convinced that a thing is right, go to work and take advantage of it, and get whatever benefit there is to be had out of it ; if you are not convinced, get up and explain your doubts, and we will discuss the matter until we find out who is right.

THE PROPER CONSTRUCTION OF DAIRY STABLES.

By P. Clark, Ottawa.

In discussing the merits of a dairy stable, many points have to be taken into consideration. If a man is about to build a new stable, he may select whatever plan best suits his purpose, but in improving existing stables it is not always easy or possible to insti-

tute the improvements one might desire to make. This point must be taken into consideration in discussing the subject.

Another point to be remembered is the size of the herd which the stable is to accommodate; a man would build differently for a herd of ten or fifteen cows to what he would for a larger herd. In my opinion, a dairy stable should be built by itself apart from any other building. It should be a one-storey building, that is to say, the feed should not be stored up above. On this point many will not agree with me, but I maintain that a stable is a place for cows only, and that it is much better to keep the feed in a separate building.

Q.: Do you think it can be done as cheaply?

Mr. Clark: It depends on how the other buildings are arranged, and on what conveniences exist for bringing the feed into the stable.

Q.: How would you proceed if you were starting to build and had no outbuildings whatever?

Mr. Clark: I would arrange a supply building where the feed could be stored and conveniently brought into the stable.

In building a building of any kind, the first thing to be considered is a good, solid foundation; without a good foundation it is impossible to have a building that will last, and one that will be warm. I have noticed that in the neighborhood of Boston, and also in the Province of Quebec, it is a common practice not to dig out the foundation at all. The stone is laid on the surface, and the base is made wider than the top, say, three or four feet wide. It is faced on the outside only. The inside is filled in solid with stone, where it is the intention to have a cement floor.

Q.: In Huntingdon County, Quebec, we fill in the bottom with large flags.

Mr. Clark: I built two stables; for one I built the foundation on the top of the ground, and for the other I dug down five and a half feet, so as to be below the frost line. The foundation of the former cost me $35, and of the latter $175, and so far I have found one plan just as good as the other.

Q.: How long has this stable been built?

Mr. Clark: Only one year; through one winter.

Q.: Would not the nature of the soil and the height of the land make a difference in the depth of the foundation?

Mr. Clark: If the land is wet, it is necessary to drain it; a surface foundation will answer on any firm soil. Farmers in Quebec have told me that they never think of digging into the ground for such a foundation.

Q.: Do you take off the surface soil?

Mr. Clark: Yes; down to the hard soil. As to floors, I believe that the best floor for a stable is a cement floor. Some claim that cement floors are cold; but the temperature of a dairy stable should not go below 40 degrees, and if that is maintained, the floors will not be cold. But, of course, the animals must be properly bedded. This is necessary even on plank flooring. The cost of a cement floor is very little more than a good plank floor.

The way to lay a good cement floor is to fill up between the foundation with any kind of rough stone, using finer material on the top, so as to get it smooth and level. On this is laid two inches of good concrete, mixed in the proportion of one barrel of cement to twelve or fifteen barrels of sand and coarse gravel. The smoother you can make the stone at the bottom, the less concrete it will take to fill in the cracks. For the finish, half an inch of cement is sufficient in a cow stable: for beef cattle and horses it will require to be thicker. This should be of the best cement. Some advocate laying the concrete and the top finish in sections, so that the concrete will not dry out before the cement is applied. I do not know that this is necessary, but the concrete should not be allowed to become too dry, or it will not unite well with the cement.

Q.: I have never found concrete answer for horses: they will kick it to pieces in two years.

Mr. Clark : I have been told so, too.

With regard to the walls, and sound, dry, tongue-and-groove lumber is all right. This is nailed on each side of the 2 x 4 studding Over this, both inside and out, is placed the best quality of building paper. It is finished on the inside with a plain dressed matched board, without any fancy beading to harbor dust and dirt. The outside should be sheeted with the ordinary siding, tongued and grooved. This gives four thicknesses, and makes a very warm building.

Q.: It would be pretty expensive ?

Mr. Clark : You must have a dairy stable warm, and I do not know how you are to have it warm unless you have the four thicknesses and the paper between. Mr. Hodson told me that he built a stable on this plan, and filled the space in the walls with soft wood shavings mixed with a little slacked lime. He found it perfectly warm.

Q.: What is the lime for ?

Mr. Clark : To keep mice and vermin from working in the walls ; you mix about a pail of lime to a bushel of shavings.

Q.: What height do you recommend for a stable ?

Mr. Clark : I think that nine or ten feet ceiling is all that is necessary. Mine is eleven feet, but I believe it is too high. I advocate building the stable with as few posts as possible in the interior ; I have only two rows of posts to support the roof. On one of my stables the roof is flat with gravel. I think this is the best and cheapest and most durable roof. The roof should be built as warm as the rest of the building.

Q.: What fall do you give the roof ?

Mr. Clark : One inch to the foot is quite enough.

Q.: Is the roof—the ceiling—finished?

Mr. Clark : It is finished on the underside the same as the walls.

Q.: What size stable do you advocate ?

Mr. Clark : I think a building to accommodate fifty cows is about right. I think you can build a large stable cheaper and maintain it cheaper and better than you can two or three small ones. The proper width for such a stable is 36 to 38 feet—I prefer 38—in the clear. On the American side they are now building stables 40 feet wide, as it adds to the appearance. With a width of 38 feet you have seven feet for a walk behind your cows, 24 inches for a gutter, a space 4 ft. 6 in. for the cow to stand on, and two feet for a manger. We have the cows as close to the gutter as possible, so that the droppings will fall into it. We have no manger except a trough formed in the cement floor. This is easily cleaned, the cows may be fed more quickly. There should be a feeding passage of eight or ten feet between the cows' heads.

Q.: How long should a stable for 50 cows be ?

Mr. Clark : One hundred and four feet. As to light, I read a good thing on this. A writer in Hoard's Dairyman not long ago said : "One of the most important things in a dairy stable is light. Sit down and calculate the number of windows you propose to put into your building, and after you have made up your mind that you have them right, double the number. Then send off to the city for your frames and sashes, and after the team has set out, go to the telephone, call up the factory, and double the order again ; it will then be about right." We do not attach enough importance to the value of light. Light is everything in a stable ; it is necessary to the health of a cow : you will have better cows, and they will do better in a light, dry stable.

Q.: How do you construct the windows ?

Mr. Clark : They are deep windows, 3 x 6 feet, like house windows, and the sash moves the same. There is a transom at the top, and the bottom raises up.

Q.: Do you double the sash in winter ?

Mr. Clark : Yes ; on the inside.

Q.: Have you ventilator panes in your storm windows ?

Mr. Clark : I do not calculate to ventilate by windows except in summer. Air should never be brought into a stable except through ventilators.

Water should be supplied to each cow so that the animal may drink at will. To secure this a proper system of piping is necessary, but it will cost you more in time and labor to carry water to your stables than it will to put in pipes. It is a very bad practice to allow a cow out once or twice a day to fill itself up with cold water. I think it would be a desirable thing to have the drinking water at a temperature of 60 degrees in winter time, if it were possible.

Q.: Do you supply water to your cows at that temperature ?

Mr. Clark : No, I do not ; but I think it would be desirable if practicable. If the water a cow drinks is at a temperature of 40 degrees, she has to use the food consumed to raise the temperature of the water after it is taken into the stomach to the temperature of her body, which is an expensive operation for the dairyman. If the water is in front of her all the time in automatic buckets, it is pretty well tempered up.

Dr. Mills : Have you succeeded in being able to keep water before the cows all the time, and have it perfectly pure ? Does not a certain amount of food, pieces of hay, etc., ge into it ?

Mr. Clark : I have not experienced any trouble with the system I employ, which is the Woodward system ; a few straws may get into it once in a while, but no meal.

Q.: We have ours right in the centre between the stalls, and find that it works satisfactorily.

Mr. Clark : You do not require to build stalls for cows ; there is no necessity for them whatever.

As to ventilation : It is difficult with our extremes of temperature to maintain an even temperature in a stable. If a stable is warmly built, however, you may bring in fresh air pretty freely and yet maintain a fairly even temperature. There is a difference of opinion as to what the temperature of a dairy stable should be, some claiming that it should be forty, some sixty, and some seventy degrees. The system of ventilation I employ is the King system. In our stable, the cold air is brought in at thirty-two places to avoid draughts. The flues for bringing in the fresh air are two inches by two feet, so as to present as large a surface as possible. They are conveyed along the inside of the building, so that the air is warmed up a little before it escapes into the stable. We have three outlets on each side, placed about seven feet apart. If we allowed these ventilators to run full on a cold day, the temperature would run down, so we regulate them, and take in only as much cold air as we can stand.

To remove the foul air we have six ventilating flues, three on each side. The foul air, even although it is heated, containing as it does carbonic acid gas, exhaled by the animals, is heavier than the cold fresh air, and consequently it lies along the floor of the building. In order to remove it, we carry the foul air ventilators down to within eight inches of the floor ,and run them up a sufficient height outside to get a good draught. A good ventilator should have all the characteristics of a good chimney.

Q.: Have you overcome dampness by this means ?

Mr. Clark : Yes ; and it is impossible to overcome dampness without good ventilation.

Dr. Mills : Do you run the chimneys above the roof ridge outside, and if so how far above ?

Mr. Clark : Mine are 22 feet long, and extend about ten feet above the roof, which is flat.

Q.: How do you construct the flues ?

Mr. Clark : They are built the same as the walls, with paper between.

Q.: How much do you lap the paper ?

Mr. Clark : About six inches. I would advise anyone who wishes to get pointers on ventilation to call and see Dr. Rutherford, Chief of the Veterinary Department. He has devised a scheme of his own that is cheap and works splendidly. He brings in the cold fresh air at the floor and takes out the foul air at the roof.

Q.: You do not agree with that ?

Mr. Clark: I have the King system. King claims that the foul air should be taken from the floor because it is heavier.

Dr. Mills: I am inclined to think he is right there. Can you so ventilate a stable that a man who is in the stable for twenty minutes will not have his clothes smell of the stable when he goes out?

Mr. Clark: There is no odor whatever in my stables; you cannot tell there are cows there; but in order to secure this condition, the stables must be cleaned four times a day, and better six times.

Q.: Do you put anything in the gutters to absorb the liquid?

Mr. Clark: Cut straw is a good thing. As soon as it has absorbed all it will take it should be removed. It will pay to buy straw to absorb this liquid, and then put it back on the land, which is the cheapest way of manuring that I know of. To keep a stable clean and free from odor is only a matter of a little care and attention. My plan is to make everything as convenient as possible, so that the men can do their work quickly and easily, and still have time to spare to properly attend to the cattle. The more convenient you make it for a man to do his work, the more likely he is to do it well. In a dairy you have to trust to your help. I am trying to produce clean, sanitary milk, and I cannot produce it in a dirty stable. Too often we handle the milk question from the wrong end; you must begin with a good cow, a clean stable, pure water, pure food, and clean methods of milking and handling the product. If you observe these things and build your stable so as to cover the points I have mentioned (which may be done with very little additional expense) you will be all right.

Q.: Do you paint the inside of the stable?

Mr. Clark. No; we whitewash spring and fall; it is good enough, and it is the right thing. On the outside I paint my stables white, trimmed with green.

Q.: How do you fasten your cows?

Mr. Clark: With a swinging stanchion—the Robinson stanchion. It has a chain from a running beam, so that there is give to it. I took out the rigid stanchions and substituted these. It is hard to get a tie that is handy and convenient, and yet comfortable to the cow.

Q.: Are your floors finished rough or smooth?

A.: Smooth. I creased the floors of my first stable so that the cows would not slip, but the other stable I made smooth, and like it better.

Q.: Are your mangers of lumber?

Mr. Clark: I use no lumber inside a stable, and have no divisions between the animals except an iron pipe, two feet six inches high, and two feet six long, attached to the post and set in the cement. It answers the purpose, and is lasting and cheap, is not in the way of the milker, and never hurts the cow.

I am always pleased to see any person at my farm, and take pleasure in showing and explaining anything I have that may be of use to them.

THE REQUIREMENTS OF A SHEEP PEN.

By J. H. Grisdale, Agriculturist, Central Experimental Farm, Ottawa.

I have been called upon at very short notice to take the place of Mr. A. W. Smith, who is down for this subject, but cannot be present, so that I have had little time in which to prepare my remarks. I cannot claim to be the authority that he is on the subject, as he has studied it all his life. I will, therefore, only give you some of the ideas that have impressed themselves upon me.

Of all the requirements of a sheep pen, I regard the most important to be that it should have lots of good, pure air, and that it should not be too warm. It is necessary to keep out snow and rain, but it is absolutely necessary that good, fresh air should be admitted. I do not advocate any particular system of ventilation, but sheep must have lots of air. Leave the doors open when you can. I have never yet found a sheep house that was too cold, but I have often seen trouble in pens that were too warm, and yet

were constructed of only one thickness of matched lumber. Some method of ventilation which will permit of a free circulation of air should be devised. At the Central Experimental Farm we have a somewhat primitive, although an effective, method. Our windows let down from the top, and are protected by a hood which prevents snow from coming in. On the opposite side we have the doors, which open in such a way as to keep out the snow. The inside of the pen is almost as cold as the outside under average weather conditions, and our sheep thrive exceedingly well.

While good ventilation and coolness are necessary conditions, it is also necessary to have one part of the pen warm and well protected, especially at that season when the lambs are beginning to come. It is all right to have lots of cool, fresh air for the old ewes and yearlings, but the little chaps need protection, and for that reason one portion of the pen should be much warmer than the rest. To insure this, a lamb creep should be provided in a section of the pen away from the draughts, where the young lambs will be protected, especially if they are overtaken by a cold snap, which often comes in the lambing season.

Another point to be observed in the construction of a pen is convenience in cleaning. This is very often overlooked, in fact, some sheep men never clean the pens at all. I have seen serious results from this, and it is essential, if you do not intend to clean the pens, that they should be exceedingly well drained and that lots of straw should be used. It is, however, much better to clean the pens once or twice in a season, and to facilitate this, we find it important to have the doors as numerous as possible.

A sheep pen should be well lighted; light is necessary for sheep as well as for other animals. We all know that sheep prefer to be out of doors whenever the weather permits, and I think it is a great advantage to have light pens. Light is a great preventive of almost all ills. There is no class of animal so subject to parasitic diseases as the sheep, and light is one of the best preventives.

The division of large houses into small pens is important. Where a large flock is kept, and the sheep are allowed to run together, they will huddle up. I have seen a flock of thirty sheep huddled into one corner of a pen, which for some reason or other they seemed to like They are not likely to do as well in that way. Therefore, I would advocate a number of small pens or divisions which the sheep would be compelled to enter at night. In connection with the pens I would have a large yard. The greatest difficulty we have had to overcome, in order to obtain strong, thrifty lambs, is to make sheep take sufficient exercise. When there is four or five feet of snow this is very difficult. We find it advisable to have as large a yard as possible. Ours is about 100 yards long, and we feed the sheep hay as far down the yard as is possible. We start off by feeding them twice a day at the far end of the yard, and compel them to go and get it. Lack of exercise is the curse of sheep breeding in this country, and it is a most troublesome thing to overcome. Sheep do not like to plunge through the snow, as they are not built for it.

Another point is to have the feeding troughs so arranged that the feed may be placed in them without entering the pens. Our own pens are not particularly convenient in that regard; they were constructed before my time, and I am not responsible for them. The advantages of this are obvious: the less breeding ewes are disturbed the better, and the feed is not carried over the backs of the sheep. If a breed such as the Shropshire is kept, that has wool on the face, the troughs and rack must be so constructed as not to rub that wool off. I have seen a wonderful variety of troughs for this purpose, but I think that the kind we employ is as good as any. It is constructed as follows:

A plank 12 inches wide and of the required length is used for the bottom. This plank is attached to the wall by one edge at a height of about one foot from the floor. Uprights 30 inches long, 3 inches wide and 1 inch thick are toe-nailed to the plank flush with outer edge thereof, and leaving 10 inches clear between themselves. Inside the uprights a strip three inches wide and one inch thick should be firmly nailed to the plank

and to the uprights to complete the trough. The corners of the trough should be filled with a triangular piece of scantling, say a 4 in. x 4 in., split diagonally.

The uprights should be firmly nailed to a stout scantling at the top. All wood should be nicely planed, all edges and corners rounded and all nails countersunk.

In the case of lambing pens, we have found it an advantage to have the doors open to one side, so that in the corner away from the draught, and yet having lots of light and air, you may have a little partition or lamb creep, where the lambs may be fed a supplementary ration. This is a point that should receive the attention of anyone building a pen, because upon the care of the young largely depends the success of the flock, and if provision is not made for a comfortable creep where there is light and air, the lambs will not thrive as well as would otherwise be the case.

The partitions between the pens should be constructed of tongue-and-groove boards. This removes all danger of rams fighting or of the sheep interfering with each other in any way. Everything about the pen should be perfectly smooth, so as not to catch the wool, and sharp corners are to be avoided.

HOW TO MAINTAIN A HEALTHY CONDITION OF THE BREEDING FLOCK.

By Robert Miller, Stouffville.

I will commence my address by giving you some idea of how, I think, a ram, the head of a flock, should be cared for during the summer time. It is necessary that such a ram should be kept strong and hearty, and at the same time active. You must, therefore, allow him to be out of doors as much as possible, and see that he gets plenty of feed. I do not think that a ram should be kept on grain during the summer; but in the case of a ram lamb that is to be used, or a yearling ram that has not reached its full development, a little grain may be necessary. Always see that they get plenty of green feed, which is most important. Green succulent food is easily digested, and both rams and ewes should get plenty of it.

The object in feeding should be to feed so that the sheep will not require to drink water. Water should always be kept within reach of the sheep, but if you can feed them so that they will not want to drink any, you are as near to successful feeding as it is possible to get. I have been among the flocks of most of the breeders in England, and if they see their sheep drinking water, they at once conclude that there is something wrong, and they change their pasture or their feed in some way so that the disposition to drink water will no longer exist.

A flock of ewes should never have grain during the summer. If you want good results from breeding ewes, do not feed them grain. This is perhaps the most common mistake made in the handling of sheep. In England it is the custom to feed a little grain in the spring to yearling ewes that are to be offered for sale, but the ewes which they intend to keep for themselves are not allowed to see grain under any circumstances. It has been my practice for a long time to give no grain to the ewes I intend to retain in my flock after they are turned out in the spring. As a result, I have been very successful with my breeding ewes. But if I were to offer those ewes for sale, the purchaser would say they were not good enough,—not fat enough for him.

You must not allow the field in which sheep are kept to become filthy, or the grass to become tramped down, or they will go back in condition; see that they have plenty of clean feed all the time.

Having kept your ram and ewes in the way I have described during the summer, in the autumn when the ram is to be put with the ewes, you must increase their feed allowance, and give them the best pasture that you can supply. Take the ram away from the ewes at night, and give him plenty of turnips and plenty of green food, supplemented with a liberal grain ration. A ram will never eat too much when running with the ewes all day.

It is most important that the ewes should have exercise during the winter. This is a question that has always given us a good deal of trouble, but its importance cannot be overestimated. Mr. McKerrow, of Wisconsin, one of the most successful sheep breeders in

the United States, fed his ewes eighty rods from where they were kept during the night. They made a trip two or three times a day, and he saw that the road was always kept open. This is a plan that anyone can follow with good results, as exercise is necessary to success. Do not give breeding ewes too many turnips. When lambing time approaches the supply of roots should be very limited, and they should be supplemented with a limited supply of oats and perhaps a little bran. When the lambing season is pretty well over, you may feed the ewes that have lambs a liberal ration of roots, oats and bran.

Do not make the mistake of giving your lambs grain; this is one of the common mistakes of breeders. If you take an agricultural paper, you will often see the question asked: "How can we get our lambs and young calves to eat grain?" It is far better not to give them any. It is a great mistake to force young animals to eat grain while they are getting plenty of milk; their delicate stomachs are not suited to it. If you watch your lambs carefully, you will see that at first they are thrifty and growing like weeds. Then you start feeding them grain, and just when you think you have succeeded in getting them feeding well, their wool becomes dry and harsh, and they go out of condition generally. This accounts for the fact that the late lambs that are born on the grass grow faster than those born inside in February—simply because, after the ewe gets out on the grass, the lambs never get a chance to eat any grain. This is the chief thing I want to touch on, because it is one of the mistakes that breeders have been making, and it has not often been pointed out to them. A man who is successful in raising lambs and calves keeps the grain away from them as long as he can.

To sum up, I would say, give your sheep a liberal supply of succulent food, and keep grain away from them as much as possible. Grain is not a good thing for a breeding flock or for breeding animals of any kind, if you can supply them with plenty of other food to keep up their condition. It is difficult to do that in this country, I admit, but it may be done if you have clover for early feeding and sow some rape to supplement it, and grow some alfalfa, and cut it just when it is beginning to blossom, so as to supply them with green feed during the summer months.

Q.: Would you feed silage as a succulent food?

A.: I do not like it for sheep; sheep do not care for any food that has so much acid in it.

Q.: Do you approve of putting sheep on long grass?

A.: I do not; it is a mistake to do so. You should keep changing them around; if you only have ten acres, it is better to divide it into four lots and change the sheep around.

Q.: How do you wash your wool?

A.: We do not wash it: I do not think it pays to wash. We always shear before the sheep go out in the spring. For the last three years the man to whom I have sold my wool has paid me more than he gave anyone else because my wool, he said, was in better condition. I try to grow a regular fibre of wool by feeding a regular amount all the year round, which is the best way to produce good wool.

Q.: When do you shear?

A.: In the beginning of April.

Q.: Do you not wash your wool at all?

A.: No.

Q.: What is the objection to washing it?

A.: You do not do sheep any good by putting them into cold water, and I do not think you get quite as much net return when everything is summed up. Sometimes, however, small buyers take advantage of the fact that the wool is unwashed, and make it an excuse to pay less for it.

Q.: What about dipping?

A.: I dip just after the ewes are turned out in the spring, dipping both the lambs and the ewes. Before they are put in the pens for the winter, I like to dip again. Any good dip will answer, provided it is used properly.

Q.: Is the quality of the wool improved by early shearing ?

A.: No, I do not think so; but we have to shear a little earlier than the ordinary farmer, as we are raising lambs to sell, and we find that ewes with heavy fleeces do not do as well nor feed their lambs as well as if shorn.

Q.: What sort of hay do you feed ?

A.: Colver hay; never feed timothy if clover hay is obtainable

Q.: Do you feed pea straw ?

A.: It is a very good feed, but unfortunately we cannot grow peas in our section. If a flock gets plenty of clover hay, they need very little else until lambing time

Q.: What do you mean by a limited supply of roots ?

A.: About half a bushel per day to seven or eight sheep.

Q.: Pulped roots ?

A.: Yes; about three pounds of turnips per head.

Q.: What kind of feeding racks do you prefer ?

A.: The kind Mr. Grisdale just described. I believe in a rack being so constructed that the sheep can get its head right through into the food. If the sheep have to pull the hay out of the rack, one may lie down, and the other sheep will feed over its back, and spoil the fleece every time. In my troughs the grain is put in first and the hay afterwards.

Q.: Do you use clean straw every day for bedding ?

A.: Yes; I think it is most important to keep the pens well bedded.

Q.: How often do you remove the manure?

A.: Twice or three times in the winter. I do not think it does much harm to have that amount of manure in the shed.

Q.: You prefer to feed outside as much as possible ?

A.: I do not feed outside; but I think it is a good plan in good weather. We have a yard attached to each pen, and the sheep go out at will.

Q.: How many do you keep together ?

A.: From twelve to twenty in a lot.

Q.: Do you let the sheep out directly the grass comes ?

A.: I do not let them out on the first rank grass.

Q.: Do you find any difficulty in keeping sheep on low pastures ?

Mr. Miller : I think that medium rolling land is much better. I have one farm where lambs will not thrive at all, for the reason that I have had too many sheep on that farm. It is 140 acres, and I have seen four thousand pure bred sheep sold off that farm in one year. I have quit trying to breed lambs there. I should explain that we deal largely in sheep as well as breed them. We have been passing through a period of depression in the sheep business, but I think it shows a tendency to improve; like every other business, if has its periods of depression. When times are bad people turn to sheep raising. My father says that during the 69 years of his experience, there has never been a year when his sheep did not make him a profit. He could not say that of any other class of stock.

Q.: Is not the fertilizing of the land an important factor in sheep raising ?

A.: We cannot get the same advantage in this respect that they do in the Old Country, where the sheep are hurdled. Sheep clean the land, but I think that cattle give better results in the way of manure.

THE BREEDING AND CARE OF HEAVY DRAUGHT HORSES.

By Wm. Smith, Columbus.

At the Eastern Ontario Live Stock and Poultry Show, held at Ottawa, the two Clydesdale stallions, "Michaboo" and "Prince of Scotlandwell" were brought into the ring for the purpose of trying to arrive at the true ideal of what a Heavy Draft stallion should be, and with the desire that the object lesson might make the subject more interesting. Commencing with the feet, we were all soon agreed that good feet, which should be good size, fairly strong at the heel, and not flat, were an absolute necessity in an ideal heavy draft stallion. The

pastern should be fair length and sloping, a good deal the same as the shoulder in the Clydesdale. The shank-bone should be flat and bony looking, covered behind with a nice fringe of silky hair.

Q.: Is feather objectionable; if so, why is it there ?

Mr. Smith : It seems natural to the breed. Scotch breeders have, however, been drifting out of so much of it. It is not an absolute necessity by any means, because there are some heavy breeds that are pretty clean in the leg.

Mr. W. S. Spark, Ottawa : Don't you think it is a certain protection to the leg ?

Mr. Smith : There is no doubt of it. The knee should be broad, strong and well formed. You have heard the statement made hundreds of times that if the feet are not good, you will not have much of a horse. I think that perhaps Scotch breeders have gone a little to the extreme in the matter of pasterns, and desire them almost too long.

Mr. Spark : If they are too long, they become weak.

Q. : Are not the pasterns longer in the young horse than in an old one ?

Mr. Smith : No; but they look longer until the feather comes out. One of the reasons why pasterns should be springy and muscular is because these horses are intended largely for the hard pavements of the city. If you observe a Shire and a Clyde, both good examples, you will notice that the Shire is a little straighter than the Clyde in the pastern, and perhaps on that account the Clyde stands the rough work of the city longer. The Shire often has more weight than the Clyde to offset the elasticity of pastern. The feet and pasterns should be as good in the hind legs as in the fore.

Mr. Spark : Don't you think that the length of pastern gives an additional grip to the horse in hill work ?

Mr. Smith : Yes; I think so. The hock should be wide.

Mr. Spark : Should not a horse, when he is standing, stand with his feet fairly straight, neither out nor in ?

Mr. Smith : As straight as possible. I am speaking of the kind of horse I want to raise colts from. I do not want a horse with the fore legs nearly even with the sides; such a horse will travel wide, and you will not know where he is going.

As to the head : The eye should be bright, the ear fairly long and tapering, the forehead broad. I do not like a dish face nor too prominent a nose. The eye should be not bulgy, but bright and intelligent. As to the neck, the Clydesdale men have not gone to extremes in the crested neck. I like a crested neck, and I think the Shires are strong in this particular.

Q.. Why do you prefer a crested neck ?

A.: For appearance sake; a horse bends his neck better when it has a crest.

Mr. A. P. Ketchen, Ottawa: Does not a good crest indicate muscular development throughout ?

Mr. Smith : It indicates strength and character. A horse should be fairly broad in the chest and not too coarse in the throat.

Q.: Which is the best, a Roman nose or a dish face ?

Mr. Smith : I prefer a little of the Roman; it shows character and determination. The shoulder of the Clyde is a little more sloping as a rule than that of the Shire; this helps them in their gait. A horse should be well rounded over the heart, and the back should not be too long.

Q.: What about length of rib ?

Mr. Smith : The length of rib should be considerable. A short-ribbed horse has not good food capacity, and my own impression is that such a horse is apt to be delicate.

Q.: And too many want their dinner at ten o'clock. I think that is a point the Clyde men will have to take into consideration, and try to lengthen the rib; too many are rather short there.

Mr. Smith : I want a stallion to have the appearance of a stallion; there must be no doubt that it is a male animal. This is indicated largely in the head and the eye. I do not like to see a pony head on a stallion: it should be a little larger rather than smaller.

Mr. Spark : If you see a horse's head out of a stable door, and nothing else, you ought to be able to tell that it is a stallion.

Mr. Smith : Similarly in a female, you want a feminine appearance. In beginning breeding, you should have all the good points I have spoken of. In the next place, you require to have an ideal.

You will not reach your ideal if you keep crossing, first with a short-legged animal and then with the long legged animal. You are bound to make mistakes; possibly in this country these mistakes will arise largely from the mares.

Q.: Is it not best for a man starting breeding to keep his filly foals, even if they are not all he desires, and endeavor to improve his stallions ?

Mr. Smith : Yes, certainly. I do not know that the weight of the stallion is everything. My experience is that one weighing 2,000 lbs. is a good weight. As to the mare, outside of the head, you require everything in the female that you have in the male. I would allow a little longer back in the female, and she should also have roominess and looseness. You require to have the feet good, the pasterns good, and the bone good, in fact, all the points spoken of in an ideal stallion. If you have a good female and a good stallion combined, you will be pretty safe to make a success of breeding heavy horses.

As to the weight of the mare, you cannot have her too heavy if at the same time she is well proportioned. We hear a great deal about quality, and I am sometimes fearful that we may go to excess in that respect. Quality is a splendid thing, but it is possible to have a little too much at the expense of the weight of the horse. I say that as a Canadian, because I think it possible that here we are a little differently situated from the breeders in England and Scotland. They have been breeding on definite lines for years, and have the right kind of mares to breed from. It is a fair assumption that, while you want all the quality you can get in a mare, you should have fairly good size along with it. In the Ottawa district the size is good.

Mr. Ketchen : Do you prefer a low set horse or an upstanding horse to breed from?

Mr. Smith : It would depend on the kind of mare I was starting with. If I had a mare clean in the bone, with her feet squarely under her, weighing twelve or thirteen hundred, I might almost be tempted to use a low set horse; but if I had a mare that was 200 lbs. heavier, with fair bone, plenty of feather and good feet, I would prefer a more upstanding horse.

Mr. Anderson : Is it not a fact that there is always a tendency to run to height and to become too narrow and thin; the trouble seems to be to keep them short legged and thick set.

Mr. Smith : If you get the weight with the upstanding horse, the more upstanding horse is all right.

Mr. Anderson : But in reference to the ordinary mare, is there not a danger of their being too long in the leg ?

Mr. Smith : The trouble with the mare that you and I have in mind is that no one knows how she is bred, and there may be a danger in that. I think there is that danger with only one cross of pure blood, but after four or five crosses it is less noticeable.

A horse should be fairly long from the loin to the hock, as it is there that you get propelling power.

Mr. Spark : Too many people think you can breed a horse to fit a collar. A ready-made collar is not always the proper thing for a horse; you want the collar to fit the horse. If a horse will not fit any collar, you must have a collar made to fit the horse.

Q. : Do you object to a white or wall-eyed horse ?

Mr. Smith : The only objection to it is its appearance, so long as the sight is all right.

Q. : How much would you deduct from the value of a gelding for a wall eye ?

Mr. Spark : I would not give less for him on that account, although I would try to get him for less, but the owner would be foolish to sell him for less. It detracts from his appearance; that is all there is against it.

Q.: Does not a wall eye go with a white blaze on the face ?

Mr. Smith : Very often it does.

JUDGING HEAVY DRAUGHT HORSES.

By Robert Ness, Howick, Quebec.

The first thing an old country judge would do in judging a horse would be to have the horse parade at a little distance, so as to get an idea of his general conformation. By so doing he will be able to decide pretty accurately before touching the animal whether it is free from any deformity or not. After taking a general look at the horse, seeing that it was sound, etc., he would have the horse walk away from him to see that he walked straight, kept his hocks tight together, had a true action and did not walk wide. If he did not walk and trot well, he would pass him over, and he would be correct in so doing, because if a horse cannot walk with a free, open stride, with the hind legs following the front, he is not a good heavy horse. You should be able to see the iron on the feet when a horse walks, showing slope and elasticity of pasterns.

If the horse satisfies you in the walk and trot, you then proceed to examine the body; but you cannot place too much importance on the feet, which are the foundation of the horse. The foot should not be too flat nor too steep, there is a common-sense medium. The coronet or hoof head should be pretty wide,—not narrow or contracted looking, as that indicates a fit subject for navicular disease. You scarcely ever see a Clyde that is spavined, but side-bone and navicular disease is considered common and must be guarded against.

The next point is the bone. You want a horse with a clean, flinty bone, with a silky fringe of hair on back part. Some measure it with a tape line, but a man who does that does not know his business. I never saw that done in England or Scotland, and I never saw a Scotchman put a horse on scales; he is able to judge these things with his eye.

Q.: In our part of the country the first question a buyer asks is, How much does the horse weigh ?

Mr. Ness : Too many big horses have been bred in this country independent of quality. Why not give order for so many pounds ?

Q.: Still that is the question the buyer asks. If you say he weighs 1,550 or 1,600 pounds he will consider him; if less, he does not want to see him at all ; is he right or wrong in that ?

Mr. Ness : You must have quality, but get all the size you can with the quality.

Q.: It is an easy matter to make a horse that weighs 1,400 in reasonable condition weigh 1,600 with flesh.

Mr. Ness : That is correct. The first thing a good judge says to himself is, How would that horse look if that extra fat were off him? What size would he be? If a horse has the framework to carry beef, he will make a heavy horse. You want a horse to look big whether he has beef on or not ; he should have as much quality as possible, and a shape that you will not be ashamed of. After I have satisfied myself as to the quality of the feet, the bone, and the shape of the body, I would have them take another turn around the ring, and decide as to the truest going horse and the most shapely horse, and then give my decision.

Mr. Spark : If you were going to buy a horse, would you not rather see one that was poor in flesh than one that had been fattened up ?

Mr. Ness : Anyone can judge a fat horse. You want a horse with ribs well sprung from the backbone; not flat sided ; such a horse will be a good shape whether fat or thin.

Q.: Would you prefer to use a larger sire in this country than in Scotland, or one about the same size ?

Mr. Ness : I have always been twitted that I imported a rather small type of horse, but I have the highest Clydesdale authority—in that Durnley, McGregor, Baron's Pride were all the blocky, low-set type, and not greasy legs, but clean, plenty bone and silky hair, and easily kept in right shape; the man that undertakes to keep the rough-haired and strong bones in right order has more work than he bargains for.

Q.: We have a different type of mare in this country to what they have in Scotland, what type of horse would you use ?

Mr. Ness: My experience is that if there is too wide a difference between the horse and the mare, the resulting foal will not be a success. I would not put a very large horse to a very small mare; but if you can get a good-sized mare and a good-sized stallion of quality, use them by all means. There is a great demand for large horses to-day.

Q.: In other words, the larger the horse is, provided he has quality, the more money he is worth.

Mr. Ness: Yes, that is true.

Q.: You are aware that eight or nine years ago when horses were cheap here, there was a good market in the old country for horses weighing twelve to thirteen hundred. A great many may not know that that market no longer exists. These horses were produced by a Clyde cross on native mares.

Mr. Ness: Yes, they were bred for street cars and omnibusses and delivery wagons. Motor cars and electricity have taken their place, and they are not wanted now, and ought not to be bred unless they are of the harness type. There is an unlimited demand for heavy horses.

Mr. Spark: The brewers, who buy the very best class of draft horses possible, and will give most money for them, and cannot get enough, tried these motors, but they were an utter failure for their work. They found that when they broke down they had to get horses to pull them out of the way. The more of these horses you can breed, the more you can sell in the old country.

Mr. Ness: We were told at one time that it was of no use to raise carriage horses, that everyone would ride a bicycle, but the bicycle to-day is largely a thing of the past. The same thing applied to draft horses. Automobiles have been tried for draft work, but have proved a failure as a general rule, and they will not affect the market for heavy horses.

Q.: What kind of a horse is used for lumbering?

Mr. Ness: We used in our country to have quite a demand for horses for the woods. The kind the lumbermen wanted was anything that would not sell to a dealer. To-day the lumbermen take a different view of the matter, and are buying a better class of horses, and are prepared to pay for them. As to the current price of heavy horses, I may say that at Toronto and Montreal horses rising four years old, and weighing fifteen hundred, are averaging $235, and running as high as $250, at the present time.

HORSES SUITABLE FOR REMOUNT PURPOSES, AND HOW TO BREED THEM.

By Dr. Geo. Rutherford, Chief Veterinarian, Department of Agriculture, Ottawa.

The subject on which I have been asked to speak to you this morning, viz., the breeding of horses for army use, is one which, while perhaps not of paramount importance to Canadian stock men, is well worthy of consideration in a gathering such as this.

For many years past, this question has occupied the attention of Canadian horsemen to a greater or less extent, and many efforts have been made, particularly by the residents of Western Canada, to induce the War Office to take steps in the direction of establishing remount stations in the Dominion.

As far back as 1886 a commission, consisting of Colonel Ravenhill, of the Royal Artillery, and Colonel Phillips and Veterinary Surgeon Matthews of the First Royal Horse Guards visited Canada and reported fully on the possibilities of the Dominion as a source for furnishing the then much needed remounts for military purposes. These gentlemen purchased a limited number of horses, and by their representations, several breeders, particularly in Alberta, were led to invest largely in foundation stock, with a view to furnishing the horses which it was supposed would be eagerly sought after and purchased by the army authorities. A considerable number of thoroughbred stallions of the best and most fashionable blood in Britain and America were purchased and placed on the ranches, while one establishment went so far as to import 300 Irish mares, with the view of producing high class military horses. No reward, however, was vouchsafed to the enterprise thus dis-

played, as not a single horse, so far as the speaker is aware, was purchased in Canada by the British War Office previous to the year 1900, although a large number of magnificent animals were produced on the ranges above referred to. The Northwest Mounted Police bought as many of the horses as were required in that service, while a considerable number of others were purchased from time to time, for the French, Belgian and Dutch armies, none, however, being asked for by the British War Office. As a result of this disappointment, the gentlemen who had gone into the project with energy and vigor, became disgusted, and either abandoned horse breeding altogether or turned their attention to the production of animals suited for heavy draft or farm work.

The suitability of Canada as a breeding ground for remounts was repeatedly brought to the notice of the British Government by Western breeders, as is shown by this correspondence, which I had carefully reprinted a few years ago when I occupied the position of President of the Horse Breeders' Association of Manitoba and the North-West Territories. No encouragement was, however, given, until the advent of General Hutton, who took an active interest in the matter, and showed himself anxious to bring about a better understanding between the army authorities and the horse breeders of the Dominion.

The outbreak of the war in South Africa and the consequent keen demand for horses to be used on service was the means of again relegating to the background the project of establishing permanent remount depots in this country.

During the continuance of the war a large number of horses, many of them nondescripts, were purchased, and the effect of this action, contrary to what might be generally imagined, was the confusing, to a large extent, of the public understanding as to the types of horses required for and purchased by the British army authorities during times of peace. There is a great difference between the class of horses bought under ordinary circumstances and the animals which must be accepted during time of war, when the wastage of horse flesh is excessive, and the demand far exceeds the supply.

Many horses were purchased by the army officers operating here during the South African campaign which would never be looked at in times of peace, and this fact must be borne clearly in mind by those listening to this paper and the discussion to which I hope it will give rise. As a striking proof of the truth of the statement which I have just made, I may say that the Ravenhill Commission spent 167 days in Canada, travelled 14,755 miles, examined 7,674 horses, of which 1,025 were registered, to be looked at a second time, with the significant result that they were only able to purchase for army purposes, 83 horses.

No objection was raised as to prices, which were looked upon as very reasonable and moderate, and it was not the question of money which prevented their purchasing in larger numbers. The reason which prevented the purchase of more animals in 1886 were fully explained by the Commissioners, and I regret to have to say, still exist to a very large extent throughout the Dominion. These officers found that the majority of the horses which would otherwise have been suitable for military purposes were unsound or blemished, this being particularly due to the overworking of the horses when too young, resulting in permanent injury to their limbs and joints. While it does not hurt a fairly well-grown Clydesdale to do a reasonable amount of work at three years old, it is the easiest thing in the world to destroy the symmetry and soundness of a light horse by putting him on the road and asking him to do a horse's work when he is only a baby. I have seen some of the most promising young horses ruined by being driven at three and four years. I have known men in the West who had nice colts of that kind, and had no hesitation in driving them twenty miles into town over hard roads, and out again in the evening. Afterwards they wondered why they went wrong in their joints, threw a splint, etc. These horses should be very carefully used until four or five or six years old. It is on this account that it pays a farmer better to breed draft horses, because they can be worked earlier than a light horse.

In the case of mares, this evil is perpetuated from generation to generation, while large numbers of faulty and unsound stallions, then as now, contributed largely to the evil.

Another objection to Canadian horses, and which was by them attributed, I think, rightly to the too extensive and indiscriminate use of the American trotter for stud pur-

poses, is the fact that they are not of saddle type, many of them having poor, straight shoulders, a long back, and short and drooping hindquarters, the latter being a serious objection in the case of a mounted soldier carrying his kit behind the saddle.

It was stated then, and I fear it is still too true, that it is the exception to meet with a Canadian horse having a lengthy rein and quarters, good withers and oblique shoulders, this type of horse being only procurable by a judicious mixture of thoroughbred blood, which has, unfortunately, especially in recent years, been far from popular among the light horse breeders of the Dominion.

The foregoing remarks are applicable to the majority of horses required for army use, although the characteristics of military horses vary with the work which they are intended to perform.

Without again recounting all the arguments which have been repeatedly advanced as to the suitability of the climate and soil of Canada for the raising of all classes of horses, the advantage in time of stress of being able to purchase in a British colony when foreign markets might be closed against us, and the convenience of shipping either to the Far East or to Europe, I now propose to give a brief description of the types of animals usually sought for and purchased for use in our military service, as also a few hints as to how they may be most easily and certainly produced.

Three fairly distinct classes are comprised by the term army horse, or "remount," as he is technically styled. Of these, the most important has hitherto been, and still is, the cavalry horse, although the nature of modern warfare seems likely to relegate him ere long to a second, or even a third place in the scale. This horse is of the distinctly riding type, that is to say, he must be well bred, with clean head, lengthy rein, sloping shoulder, deep through the heart, well ribbed up, with a strong short back, good loin, long, straight quarters, and tail well set on. He must, when full grown, stand squarely and on short legs, not less than 15-2, nor more than 16 hands, should girth six feet or more and measure not less than eight inches below the knee. He must be essentially a strong horse, as the British cavalry trooper, with his arms and kit, looking, as Tommy Atkins says, "like a bloomin' Christmas tree on 'orseback," rides from 250 to 280 lbs weight, and his mount must be able to move freely under this killing load.

Such animals are not very plentiful in any country, and, in fact, are constantly growing more difficult to procure. They can best be obtained by the judicious use of selected thoroughbred sires on strong half-bred mares, on those having an admixture of hackney or coach blood, on strong roadster mares, and in Canada on fair-sized and symmetrical French mares. On light roadster mares showing a tendency to weediness a Hackney sire having plenty of quality may be used with advantage.

The artillery or army draft horse is of an entirely different type, and is more easily picked up than the trooper. He may best be described in general as an active, quick-moving vanner or expresser, the horse known in Glasgow as a "Gyp," having enough quality to stand hard, fast work, with sufficient substance and strength to handle his share of a by no means light load. He should be a short-legged, solid horse, with plenty bone, able to trot out freely, and above all to walk well. A proportion of draft blood is not objectionable in the wheelers, especially for field artillery, and even horse artillery wheelers must be extra strong in the back and quarters, as they have to take and hold the shock of the heavy gun in a sudden halt.

For the horse artillery, as also for the lead and centre pairs of field artillery, a lighter and more breedy horse is required. Thus more variation is permissable among gun horses than in those for cavalry use.

Many of our lighter general purpose horses are exceedingly well adapted for artillery work, as was plainly demonstrated during the recent campaign in South Africa. The lighter types can be obtained by using a strong, stout T. B. horse on mares of size and action, or by breeding biggish road mares to a good Hackney or French coach horse. Many of the best gunners are bred from the T. B. horse and Suffolk mares.

The mounted infantry horse is simply a strong, well-bred pony or cob, with as much riding character as possible. He should have a good rein and an oblique free shoulder, should be deep through the heart, and have a strong back, with a good loin and quarter. He should stand squarely on short legs, not less than 14-1 nor more than 15-1. The favorite being about 14-3.

He can be easily got by using a stout T. B. sire on French-Canadian or other strong pony mares, or by stinting the undersized trotting bred mares so common in Canada to a good Hackney stallion, the latter being also, undoubtedly, the best horse to use in breeding from Western ponies.

Except during war, horses are bought only between 4 and 7 years old. Bays, browns and blacks are preferred, while chestnuts, especially dark chestnuts, are not rejected, if otherwise suitable. Blacks are especially in demand for the Household Cavalry; about fifty grey troopers and a few grey artillery horses are purchased each year for special corps, but no parti-colored horses are wanted. Mares are purchased as well as geldings, though the latter are preferred. Unsound or badly blemished horses are not taken; the veterinary examination being very strict and searching. Undocked horses are greatly preferred, and no horse with a very short docked tail will be taken.

It is to be sincerely hoped that the negotiations now in progress will result in the establishment of permanent purchasing depots in the Dominion, for the reason that, apart from any other benefits which might result, such a step would be certain to bring about a rapid improvement in the quality of the lighter horses, which, whatever may be said to the contrary, will continue to be extensively bred, especially in certain localities.

The objection has been raised in certain quarters that it will not pay Canadian farmers to breed horses suitable for army purposes at the prices at which they have to be purchased by the War Office. This objection has weight, and I would not advise any Canadian farmer or horse breeder to start in with the avowed purpose of breeding horses for military purposes, but when we consider the large prices procurable for high class horses suitable for hunters' saddle horses or harness work, there can surely be no question as to the advisability of endeavoring to breed such animals in preference to the nondescripts now so strongly in evidence everywhere throughout the Dominion. Let the breeder of light horses aim to produce a type of the highest class, and if he fails, as fail he will, to do so in every instance, he will still be likely to have an animal well adapted for army work, and which, if matters progress as they are now doing, will find a ready market.

Again, admitting that it will not pay the farmer to deliberately breed mounted infantry ponies, I would point out that thousands of ill-conditioned and mis-shapen little weeds are annually produced in all parts of the Dominion which might very profitably be supplanted by stout, useful, symmetrical cobs, the best of which would be in keen demand at high figures, while the remainder would be well suited to supply this comparatively new military need.

S. B. Fuller, Woodstock: I am glad to know that Dr. Rutherford has so thoroughly mastered the remount question, and with most of his remarks I can thoroughly agree. You must use a thoroughbred horse to get a cavalry horse. The difficulty is to get the British authorities to pay a price for it that will warrant you in breeding it. So far as I am aware, the current prices for such horses range from $150 to $175. That price must be increased if those who engage in the business of raising such horses are to make any money out of it. There is too much red tape in the matter of buying horses for the British army, and it is making its appearance in connection with our own little army also. If they would establish depots in Canada, and commission dealers to buy horses on the best terms possible, and agree to give them an average price all round, it would give the dealers a little lee way. A dealer might have to pay $200, or even $225, for some horses, but others he would get much cheaper, so that they would average a reasonable price all round. Of course, there should be a stipulation as to age, height, girth, soundness, freedom from blemish, etc. I think that if this plan were adopted, suitable horses could be secured. If the British authorities were to send out a commission to Canada to-day, at the price horses are selling

now, they could not purchase a horse in their red tape way.

So far as breeding is concerned, I thoroughly agree that the thoroughbred must be at the head all the time to produce a cavalry horse. You should not, however, breed to leggy thoroughbreds of too light bone.

As to the use of Standard bred horses, to which Dr. Rutherford takes exception, I must explain that in my remarks in Toronto recently I did not advocate the use of the Standard bred horses to get remount horses; we were talking about road horses; you must have a Standard bred to get road horses. The best pair of horses in Canada to-day are Standard bred.

I will not discuss the question of the kind of stallion to use; the thing I want to impress is the great importance of keeping your mares. The curse of this young country of ours is that all the good mares are bought to go to the United States. Mr. Smith will bear me out when I say that it has been a terrible detriment to our heavy horses that fourteen or fifteen years ago there was an invasion from the United States to buy heavy mares in Canada. They bought all our best mares, and the farmers let them go as cheaply as they would geldings. It is the same with the lighter mares. I have been a large dealer in my time, and have sent thousands of horses to the United States. I suppose that if I had kept a record, I should find that probably sixty per cent. of these were mares. In the United States people do not object to driving a mare, as they do in the old country, where as a rule people prefer geldings for carriage and saddle purposes; in the United States they would just as soon have a mare; they look to the future to get something good out of her. This is a matter I have always tried to impress very strongly upon our Canadian breeders, and I'm afraid the seed has fallen on barren ground, because they will still sell mares at about the same price as geldings. Mares should be worth a great deal more in the hands of farmers and breeders; and yet a dealer can go into the barn yards, at any rate in my section, and buy a mare that is equal with a gelding at exactly the same price. The mare has more to do with the progeny than has the horse, and you must select your mares,—and select them so as to mate properly with the horse of your choice.

I am glad to say that we never knew in the history of Canada of horses being as high in price as at present. I do little in draft horses, but for the information of some of those here who are interested in draft horses, I may say that the other day I went out with a gentleman who wanted draft horses. We were out a day and a half and bought nine, buying from the farmers direct. These horses were to go right to work, and remember this important fact, that among the nine there were four or five that were only coming four years old, and yet they had to go to work. We paid $2,020 for the lot. There was not a horse among them that weighed less than 1,500 lbs. I am glad to say that there was only one mare in the lot, and that mare was one of a pair.

Mr. Spark: I am much interested in this question, and I quite agree with Dr. Rutherford that it is of no use a farmer starting out to breed remounts, for the reason that you are trying to breed, to my mind, an inferior animal. You are getting nothing but a $175 animal. (The farmer does not get all of that.) I would advise him to breed as Dr. Rutherford has suggested,—the best class of animal he can, and let the misfits go for remounts. It is all very well for the Government to say they cannot get them here; can they go and breed the horse they want at the price? Why does not the Government start a stud farm here and breed them at the price they want to give other people for them. I would advise you, so far as I am concerned, to stick to your draft horses and high class carriage horses, and you will make more money than you ever will trying to breed for this particular trade.

Q.: What is the average height of a Hackney?

Mr. Spark: About fifteen hands for the general driving horse.

Q.: If he were sixteen or sixteen two, he would be out of his class?

A.: He would be a little bit big.

Mr. Smith: The standard of the Hackney Horse Society is fifteen three, and if an animal goes beyond that, he is out of his class.

Dr. Rutherford: I do not wish it to be understood that I have any objection to a good Standard bred horse; some of the best horses I ever saw were Standard bred; but I say this, that the Standard bred—the American trotter, as we see him here in Canada—as a rule is not a fit and proper horse for any farmer to breed. When I first came to Canada there was a style of horse here that was a pleasure to look at and to drive. They were big horses, standing 15.3 to 16 hands; well set up, rangy, deep through the heart, good, strong, sloping, free shoulders and lots of bone; good big bellies, strong backs and loins, good quarters, strong thighs and legs and feet like blocks of wood. They were not fast, but they were great horses on a journey, because they had the substance and staying power. They were got by such horses as Clear Grit, Royal George and his sons, out of mares which were plentiful in this country, that is, mares descended from thoroughbred horses brought out in the old days by army officers. Where are these horses to day? Twenty or twenty-five years ago they began to bring in these little Standard bred horses, bred for speed alone; conformation was lost sight of, size and substance were ignored. These horses were brought in, and our people were foolish enough to breed to them, and the result is that the Canadian road horse has deteriorated from that day to this. It would be a poor breed of horses that had no good ones in it, and I admit that you see some cracking fine Standard breds, but not a great many. The Standard bred has not the pedigree behind him, even if he is himself a good individual. It was until recently the case that a good horse could get into the Standard and be registered, when no one knew how he was bred. Such horses have no prepotency. Compare them with the English thoroughbred, where not a drop of cold blood has gone into the stud book since 1791; such a horse will get something that is as good as himself. In many other respects the British breeds are far superior.

Mr. Fuller: The Standard bred is a most useful horse to get gentlemen's road horses in this country. Such a horse will command just as much money as the ordinary saddle horse or hunter, and perhaps more.

JUDGING BEEF CATTLE

(Illustrated by Live Animals and Dressed Carcasses.)

By M. Cumming, Assistant Professor of Agriculture, Agricultural College, Guelph.

Had this discussion upon beef cattle taken place a few years ago some ideas, very different from those which will be expressed now, would have been presented. Then a heavy carcass, and consequently heavy steers, would have been advocated as the most desirable; now a medium weight carcass and medium weight steers are the ideal; then the best market steer would weigh 1,700 or more; now he should weigh from 1,200 to 1,500; then uneven patches, or rolls of fat, would have been but slightly disparaged; now smoothness of fleshing and freedom from patches of fat are indispensable requisites of a prime steer; then quantity was the great desideratum, now quality is the mark of supreme excellence.

This change in the demands of the market is characteristic not only of the beef consumers, but also of all other kinds of products, and is easy to understand. Away in the lumber woods or on the fishing craft quality counts for little. There thick fat pork and beef is the food of the much-exposed and hungry men. But in the cities, indoor employments take the keen edge off the appetite, and a leaner, finer-grained class of pork and beef is needed to satisfy the wants of a more delicate palate. Moreover, the days of the tallow candle are no more, and as a result fat is not now of the value it used to be, being worth but 2 or 3 cents a pound, in contrast to values of 10, 15 and 20 cents placed upon good cuts of beef.

This, in a large measure, explains to those who watched them why the judges at this show always chose, as winners in their class, beef animals that sometimes were considerably smaller than those ranked below them, but were superior in smoothness of form, straightness of lines, and evenness and depth of fleshing.

However, it is not only the butcher and consumer of beef who are interested in this change in the demands of the market, for it has already been shown in previous addresses that it costs less to feed young than old steers, and steers of the sort described above mature and can be finished at a very much earlier period than the former over large, coarse steers. So not only is the butcher better satisfied with the early maturing steer of quality, but the feeder can make more profit from him.

I take it for granted that almost all, if not all, my hearers, having examined the prize-winners of this and other shows, are familiar with the form of the ideal beef animal. A brief reference to this chart, for which I am indebted to Wm. Cooper, of the Smithfield Meat Market. London, will, however, show clearly why best beef animals are almost parallelogramic, with the corners rounded off, in form. (See diagram in Prof. Day's talk upon beef cattle in the report of the Guelph show.)

From this diagram you will see that the most valuable meat is found on the upper part of the carcass from the rear of the shoulder right back to the tail, and from there down to the hocks. Hence, it is easy to see why, in judging the live animal, the most important consideration is that it should have a wide, thickly-fleshed back, loin and hind-quarter. If it were possible, the butcher would want beef cattle to consist almost altogether of these parts. However, one has only to examine the prize-winning cattle of this show to see that the cattle, possessed of these requisites, are also deep-bodied, low-set animals, with large, full heart girths, wide, deep fronts, and low flanks. Hence, it fortunately happens that the best butchers' animals are usually the best feeders' animals. At the same time, there must not be any undue waste in the lower part of the body. When, for example, a dairy cow is fattened for beef, it is easily noticeable that a very high percentage of her weight is in the lower part of the body, and, as a rule, cattle of all dairy breeds are inclined to this fault. A good beef animal, on the other hand, is characterized by a very straight, trim underline, for all butchers know that cattle possessing this requisite kill better, i.e., yield carcasses with less waste than those with "balloon-shaped bellies."

The degree of finish, or fattening, which a prime steer should be brought to has always been a matter of contention among judges. Every housekeeper knows that a roast of beef must have considerable fat in order that the lean meat may be juicy and tender. Thin roasts, carrying very little fat, are very dry and tasteless to the connoisseur of beef. At the same time, the economical housekeeper will refuse to buy overfat beef, because there is a limit to the amount of fat one can eat, and whatever fat beef carries over and above this is largely wasted. However, the high class markets, and especially the English markets, to which our best steers are consigned, demand a fairly fat carcass, and, as far as I could ascertain, during a recent visit to the Smithfield market. London, no complaint is more frequently urged against Canadian cattle than that they are under-fitted, and hence do not fill the demands of the best-paying customers at that market. Of the two carcasses present at this show, that of the pure bred would be considered a little overfat, and that of the grade just a little under the mark.

There are some prize-winning steers here that are too fat even to suit the best markets, unless it be to afford a very showy carcass for the holiday seasons, and, on this account, there are men who question the validity of the judgment which ranks steers at the top when alive, the carcasses of which would be turned down if exhibited in the block test. In other words, the question is often asked, "Why is it that the steer that wins first alive so often stands at the bottom of the list dead?" It is not an error of judgment, but it is because the judge wishes to give some recognition to the selector and feeder of the overfat steer, as well as to the butcher. The only reason why the carcasses of these animals are turned down is because of being overfat. Had these animals been entered for a block test some weeks or months earlier, it would have been different. Hence, although the best steer at this show is a little too fat from a block test standpoint, yet he is an exemplification of form and smoothness and quality, and almost a perfect feeders' model. To place ahead of him one of the thinner steers that is neither as smooth or as good a feeder's model would, we think, do an injustice to such a steer. At the same time,

there is a difference in the amount of lean meat carried by even these overfat steers. Some have a relatively small core of lean, and others have so much lean that they can scarcely be made overfat, and hence one of the greatest problems in judging is to be able to tell by the appearance and handling of a finished steer whether he carries a large amount of lean as well as fat, or whether he carries a small amount of lean and a large amount of fat. It may as well be frankly stated that one cannot always tell this with certainty. Nevertheless, there is a certain touch to the flesh of a steer that carries a large amount of lean in proportion to the fat which the experienced judge can usually recognize. Very soft or very hard handling steers usually carry a large proportion of fat to lean, whereas a firm yet mellow, elastic touch usually indicates a good proportion of lean. In addition, if you try to push your fingers in between the ribs of a thin-fleshed steer, you will find much less resistance than if you were to try the same with a thickly-muscled or fleshed steer. Still, careful feeding will so modify the texture and touch of the fat that one cannot always be sure in regard to this unless he has had opportunity to know the animal before it was fitted, when, of course, he can recognize the relative amount of lean meat or muscle. In this connection, no point should be more emphasized in our breeding beef cattle generally than the amount of natural flesh they carry. There are too many very tidy but naturally thin-fleshed or muscled beef cattle, and sometimes on account of the great demand for smoothness these are wrongly ranked above cattle that are naturally thicker fleshed, but perhaps a little more uneven.

There are many more points of great importance to which attention might be called, but the live animals and dressed carcasses at this show illustrate these in a way that words cannot express.

THE BACON HOG AND HOW TO JUDGE IT.

(Illustrated by Living Animals.)

By J. E. Brethour, Burford.

The subject we are to discuss is of great importance to us as Canadians and farmers. In Ontario we have made rapid strides in the improvement of the bacon hog. Ten or twelve years ago, when we first started to work along the line of the advancement of the bacon industry, and to show hogs of the bacon type in the ring, other breeders who were showing at that time ridiculed us, and called our animals "razorbacks." That day has gone by, and we are now educated up to a standard that is near perfection so far as the bacon hog is concerned. Having been so educated as breeders, I think it is correct that the knowledge should be diffused among the rank and file of the farmers.

What I have to say to-night will be addressed to the average farmer, and I shall illustrate my remarks by the animals that we have here before us. I shall speak of the class of animal we require, first from the market standard, because that is the standard we are bound to adopt in looking to the production of bacon. I will then take up the farmer's side of the question, that is the style of animal we ought to produce in order to get the best results from the food given to the animals. This, I take it, is one of the necessary things in the production of the bacon hog. If we lose sight of the fact that it is necessary for animals of the type desired to be good feeders, the farmers will not produce them; if they are found more expensive to produce, and the difference in price between the high-class article and the average article is not high enough, the farmers will not produce the high-class animal. I do not wish you to go away with the idea that the bacon type of hog is more expensive to produce than the undesirable, or thick, fat type. That impression prevailed at one time, but I think it has been largely discarded, because the experiments conducted at Guelph and at Ottawa and at several of the experiment stations in the United States have shown that this type of animal can be produced just as cheaply as the undesirable type; in fact, I believe it can be produced more cheaply. The reason I say that is because I have made very close observations since I have been breeding, and I have

concluded that the style of animal required to produce the highest class of bacon must necessarily have the conformation which indicates a healthy animal. If we have a form of body that indicates lack of thrift, vigor and vitality, that animal will rarely produce a high-class carcass. You may get in an animal that is narrow, long, flabby and loose what you may think in a casual way is a desirable carcass, but if you look into the quality of the meat produced, you will find that it is hard, dry, and undesirable.

I have not here present what I would call extremes of type. It is a difficult matter at a show of this kind to have specimens to illustrate all the points I should like to explain as to the different types of animals and the different shades of condition.

In the first place, I would draw your attention to the four pigs we have here; two of them are, I consider, ideal; of the other two, one has a good conformation, but is overdone; the other is not the bacon type at all, although to look at it in a casual way you might think it a pretty fair type of animal; but it will never produce, except in an unfinished condition, a properly formed carcass for a bacon hog.

Our aim is to produce a large quantity of lean, mellow muscle or flesh; not a large proportion of sinewy, hard meat, but flesh that has been well nourished by good, nutritious food. An animal of the improper type may, perhaps, be made to produce, with very careful feeding, a medium quality of bacon, but to produce a high-class quality, the animal has first to be of the right type, and, second, to be correctly fed. If you take an animal of a breed that has a marked tendency to put on fat, that animal, if properly nourished, will use most of its food to put on fat.

We will now examine the ideal specimen. Looking at the animal from the front, you will notice that it has a comparatively light head, but at the same time it would not give you the impression of being a weak head. If an animal is narrow between the eyes and contracted at the jaw or back part of the face, you are apt to get a shy feeder and a slow maturing animal. We like the head to be of medium length, not short and chubby, nor yet unduly long, as that means waste. If you have an animal possessing a good, fair width between the eyes, a good, prominent eye, and a clean, neatly finished jaw or cheek, that animal will usually possess a smooth carcass. If, on the other hand, you have a short, heavy head, you will usually find a round body and a wide, fat back.

Leaving the face and going back to the upper part of the head, it is desirable to have that portion full and well developed, showing the animal has good brain capacity, and possessing good vitality. The ears should be fairly wide apart; if they are too close, it indicates a narrow head, and not much development in the skull. The ears should be of medium thickness, and more or less transparent; not a loose, flabby ear, as that is not usually possessed by an animal of a highly active organism.

The neck should be of medium length, without any crest or arch. A short neck frequently goes with a short side, which is not desirable from the bacon standpoint. The shoulder should be smooth, not wide, and evenly rounding over the top. The animal should not be wide in the shoulder and flat on the top, which would indicate that the carcass would cut thick. Behind the shoulder, or the crops, as we say in a bullock, the pig should be full, showing a well sprung rib. The ribs should come well out from the back and drop straight at the sides, not springing out and rounding all the way down. With a flat side you seldom get a large quantity of fat upon the back, but the back will be bedded in muscle and lean meat. This is an important point, because that portion of the carcass carries the highest priced meat.

The animal should be long from the shoulder backward, and short from the shoulder forward. Some animals have the appearance of being long, but on closer inspection you find that this appearance arises from the fact that the shoulder is set too far back on the body, and that the animal has a long neck and nose.

As to the loin, this should be well arched and well covered, showing a strong back, and a back covered well with good flesh or muscle. The loin should be practically as wide as the upper part or top of the shoulder. The rump should be slightly drooping at the tail, giving a long extension to the ham. If the rump is carried out straight, usually

the hams are too short. As to the lower part of the ham, the flesh should not bulge at the back or side, but should be filled well down to the hock, with the flesh drawn down, covering the shank, without looseness about the hock, or wrinkles or flabby flesh. If that occurs on the inside or outside of the leg, it spoils the perfect form of the ham, and indicates a great deal of fat that must be trimmed off the carcass. An ideal carcass should not contain any waste, but all be marketable. The flesh of the hind leg should go right round the bone, the inside of the leg being covered.

Looking at the pig from the side, it should show an even development from the top of the shoulder to the brisket, good depth around the heart, straight under the belly, being as deep from the loin down as he is from the top of the shoulder to the breast. The belly should not be pendulous. We often hear the remark that an animal has a very deep side, but that depth is sometimes accounted for by the fact that the lower part of the belly is pendulous. Yet we want a thick belly and a thick flank, as it indicates a thick loin, and that the animal possesses a large amount of lean meat through the belly and the back, which is what we are aiming at. Good length of leg goes with a long body, as without it the animal would not be symmetrical.

The bone must be of good quality and fairly strong. If the bone is too light, the pig will break down, and pigs with very light bone do not produce as much lean meat as pigs with a fairly strong bone. When I speak of strong bone, I do not mean a big, round bone; such pigs break down, and usually possess a coarse frame, and this is, therefore, an important point for the farmer. The bone should be broad, flinty and flattish rather than round. A round bone usually indicates a round body and a carcass predominating in fat. The bone should be of such strength and quality that the pig stands upright on straight pasterns and straight knees. To a casual observer, points of this kind might not seem essential, but when as breeders you are producing animals that you expect to reap the highest profit from. Such things are of real importance. An animal that does not take exercise and make free use of its limbs will not make the best use of its food, because indigestion is induced, and the animal becomes feverish and unthrifty.

The hair should be abundant, and of a soft, silky texture, not harsh and bristly. Pigs with coarse bristles along the back are usually coarse and gluttonous, and do not make good use of the food they eat.

Q.: How do you detect the quality of the flesh?

Mr. Brethour: We think that if we have an animal that is firm and yet not harsh or hard in handling, it will have firm, solid flesh. If, when you handle a pig, your hands or knuckles dent into the flesh, invariably you get too much fat. When you put your hands on the top of the animal and the flesh seems to move away from the skin, it indicates an unthrifty animal.

Q.: Can you tell by the handling qualities one that has been fed too liberally and then held back?

A.: It is a difficult matter. An animal that has been fed heavily and brought to perfect bloom, and then held, or has dropped back, will usually have loose, flabby skin along the lower part of the body.

Q.: In choosing a young sow, it is a mistake to have her too straight in the back?

Mr. Brethour: Yes, that is correct. In looking at the animal from the side, it should start to rise a little over the shoulder, and continue all the way along till you come to that portion where the ham and the loin are joined. In a long pig, especially, if the back has a sag, the animal has a weak back.

Q.: Is a hollow back always a weak back?

A.: Usually; and if the animal is fed up, it will usually have a large amount of fat there.

Q.: Is not the attachment of the ear an indication of the thrift of the animal?

A.: Yes, and the curl of the tail as well. The animal should have the appearance of having good control of the ears, not a loose, flabby, floppy appearance.

Q.: What is the ratio of value between the lower half of the side and the upper half as you see it hanging?

Mr. Brethour: About as 14 is to 22; if the lower part is worth 14c, the upper part should be worth 22c. However, different cuts make different prices; it varies according to the market, but speaking generally that would be the proportion.

Q.: In order to get a back, you have to have the belly?

Mr. Bretheur: If you have not a good belly, you have not a good feeding animal. An animal with a tucked up flank has limited stomach capacity.

W. E. Matthews, Ottawa: I should like to corroborate what Mr. Brethour has said as to the desirability of having a long, lean hog. If I had known that he wished to have some examples of the short, stunted pig, I could have provided him with some which we took in to-day, some of which woudl show four inches of fat on the back.

The interests of the farmer and the packer are identical. Without the packer, the farmer cannot market to advantage; without the hogs, the packer cannot work. If we are to retain our foothold in the British market, we must have the pig that will give the article which we can place in the best markets in the Old Country. We have stronger competition there than ever this year.

Q.: Where from?

Mr. Matthews: From Denmark. That country has been slaughtering from thirty to forty thousand hogs per week for the London market, and they have driven the Canadian meat north, because the British dealer will give the preference to Danish bacon every time. This is due chiefly to the very mild cure, as they have facilities for putting it on the market in 48 hours.

Q.: You mean that our meat goes to the mining districts of the north, where it fetches a less price?

Mr. Matthews: Yes, from Birmingham north. There they are a cheaper living people, engaged largely in factories and mines, and they want good meat, but want it cheap.

The difficulty we have had in the past, east from Kingston, is that we could not get hogs at the time of the year when we wanted them, and have had to go west to get them. The farmers of the Ottawa Valley have a good class of hogs, a little too short, but of the right breed. If they introduce a little longer pig of the same breed, we shall have just as good a pig as they have in the West; but we must have the hogs marketed at the time of the year when we can sell to advantage. The English market requires a freshly cured side of bacon. The bacon has to be sold as soon as it is from twelve to fifteen days in salt. That is the reason we get such big slumps in prices, because when we send our bacon forward, we have to take the price that is going, and put up with it. It is just the same as a fruit man sending his strawberries to a glutted market. Sometimes, two or three weeks afterwards, conditions will right themselves, and prices will go up with a bound.

In the East we should like to see the farmers produce more finished hogs in the summer. They have a habit of marketing in October, November, and December. We took in 13,000 hogs last October which lost us $1 a pig. If we had had those hogs in August, and put the product on the English market when the market was good, we could have paid more money for them and made more ourselves. In order to have hogs for sale in July and August, it is necessary for the farmer to hold them over winter. To get the best price and put the bacon on the market in England at the right time, we want hogs in July and August and up to September 15.

I find that, talking with our drovers in Eastern Ontario, the chief complaint is that winter hogs are stunted. The reason is that the farmers, as a rule, have not got proper houses in which to take care of them. Any animal to grow well and grow profitably must be taken care of and properly housed. That is a point which I shoudl like to see the Institute lecturers lay more stress on. I know that our winter pigs are stunted. The reason is not in the feeding, but in the housing.

Another fault we have to find is that many of the hogs we receive are bruised. Many are bruised on the hams, indicating that the hogs have been kicked in loading. I admit that the drovers are often responsible for this, as they get irresponsible boys to load the pigs on the cars, who think nothing of kicking a pig.

We hear the statement every day that hogs do not pay. I do not know whether they do or not. I know that sometimes packing does not pay and sometimes it does. I assume it is the same in raising pigs; we have to average it out. If Canada can produce hogs to make bacon to compete with other countries, then we have got to get down to work, and all work together, and if we do that, there is no reason why we should not produce hogs as cheaply as they can in Denmark and Ireland. It is not altogether desirable when hogs get cheap to drop out of them, because that is often the time when the turn comes. No one deplores more than we do a sudden drop in prices. The packers are often unjustly blamed for this, but it is impossible for them to control it. If you cannot produce hogs to compete with the farmers of Denmark, then we had better not try to extend this trade; but with a uniform hog of the right character, marketed at the right time, there is no reason why there should not be an export bacon trade from Ontario in ten years to come amounting to twenty-five or thirty million dollars a year.

Prof. Cumming: I visited England last year, and interviewed some of the dealers regarding Canadian and Danish bacon. They would take down a box of Danish sides for my examination and for comparison with our own. The Danish sides were uniformly long and smooth. Ours were not so uniform, and contained more soft sides. The greater uniformity in the Danish product is due to the fact that they confine themselves almost exclusively to one breed, and the result is uniformity in length and quality. In this country we still have too many breeds of hogs that are not yet adapted to bacon purposes, and while this state of affairs exists we can never hope to obtain as uniform an article as is produced in Denmark. We must, therefore, continue the process of education, and improve the standard of our product, or we are in great danger of losing this trade to a large extent.

I may say that in Denmark the Government conducts experiments on an enormous scale, not at experiment stations, but through the farmers themselves. They make arrangements with farmers who are feeding a great many hogs to carry on an experiment. They have been able to obtain very reliable results in this way. At the college, our experiments have been confined necessarily to a comparatively few animals. What ought to be done is to extend the experiments out among the men who are producing the animals on a large scale. These experiments should be conducted in the feeding of all kinds of stock, and would, I am sure, give very important results.

FEEDING BACON HOGS FOR MARKET.

By G. E. Day, Professor of Agriculture, O.A.C., Guelph.

If we are to maintain and develop our trade in bacon with Great Britain, it is of the greatest importance that we pay strict attention to quality. Not only must our hogs be bred to give the desired conformation, but they must be fed and managed in such a way as to give the desired quality. One of the greatest defects in quality with which our packers have to contend is a tendency of some sides to turn soft during the process of curing. Softness has nothing to do with fatness; in fact, a thin side is more apt to develop softness than a fat one. In a soft side, the fat is soft and spongy, and sometimes even the lean is affected. There are all degrees of softness up to mere slight tenderness, but any degree of tenderness detracts much from the value of a side, and a really soft side is practically worthless. The percentage of soft sides is sometimes very high, even as high as 40 per cent. of the total at certain seasons of the year It will, therefore, be easily understood that such a condition represents an enormous shrinkage in value, and this loss is bound to be reflected in the prices paid the farmer for his hogs, to say nothing of the injury to the reputation of our bacon in Great Britain. This is

not a matter, therefore, which affects merely the packer. It affects the bacon industry as a whole, and the farmer, sooner or later, must shoulder the loss. It is important, therefore, that the farmer should pay particular attention to the question of quality.

Cause of Soft Bacon.

To describe all our experiments under this head would occupy too much space, and would be found tiresome, and perhaps confusing, to the average reader. The conclusions which follow are based upon a careful analysis of our work to date, descriptions of which have been published from year to year in the annual report of the College. We have also been able to draw upon considerable unpublished data.

Exclusive Meal Feeding. This is perhaps one of the most common causes of softness, especially when hogs are confined in pens from birth to the time of marketing. Some kinds of meal are more dangerous than others, but wherever exclusive meal feeding is practised, and the exercise is limited, more or less softness is almost sure to result.

Corn and Beans. Of the grains in common use, corn has the greatest tendency to cause softness. Its injurious tendency can be modified by mixing it largely with other meal, and by feeding skim milk, green foods and roots, but its tendency to produce softness is so strong that it must be regarded as an undesirable food.

We have not experimented with beans, but the Central Experimental Farm at Ottawa found that beans have an effect similar to corn.

Lack of Exercise. Lack of exercise has a tendency to produce softness, but this tendency can be largely overcome by judicious feeding.

Unthriftiness. Unthrifty hogs, no matter what the cause may be, invariably produce soft bacon.

Lack of Finish. Thin hogs have a marked tendency towards softness. Marketing hogs before they are properly finished is no doubt responsible for a good deal of softness.

Holding Back. When a hog is finished, it should be marketed at once in order to produce firm bacon. If the feed is cut down, so that the hog makes no gain in weight for some time, the bacon from such a hog is almost sure to be soft.

Production of Firm Bacon.

From what has been said, it will be seen that softness may result from a number of causes, and it is possible that there are causes outside of those mentioned. Enough has been said, however, to place the feeder on his guard against the most common causes, and below are offered a few suggestions regarding methods of feeding and management which we have found to give good results :

Feeding. As already stated, exclusive meal feeding is apt to injure the quality of bacon. We have also found that it does not give so economical gains as a mixed diet. Among the foods which we have used along with meal are skim milk, whey, roots, rape, vetches, and clover. We have found that these foods, combined with a liberal meal ration, invariably give better gains than an exclusively meal ration, and produce a better quality of bacon. It is probable that much of the beneficial influence of these foods is due to the fact that they keep the animals healthy and thrifty, a condition necessary to the production of the best quality of bacon.

But, while these succulent foods have an important place in hog feeding, they may also be abused. If an attempt is made to feed hogs almost exclusively upon them, the chances are that the hogs will not be properly finished, and soft bacon will likely result. The use of various foods will be found more fully discussed under "Notes on Foodstuffs."

Exercise. In our experiments we have found that unlimited exercise during the fattening period is not conducive to cheap production. At the same time, the exercise has a good effect upon the firmness of the bacon produced. We have secured our cheapest gains and an excellent quality of bacon from allowing the hogs only a limited amount of exercise in small outside yards adjacent to the pens, and feeding a limited ration of mixed meal, accompanied with all the green food they will eat. By a limited meal ration is meant an allowance slightly less than the hogs will eat if given the opportunity. We

have found this method more economical than feeding meal on pasture, though it requires more labor. It is a notable fact, however, that hogs which have run at large until they weigh 100 pounds in thin condition, may be finished on almost meal mixture, and still produce firm bacon. This fact illustrates the marked influence of exercise upon the firmness of bacon.

Notes on Food-stuffs.

It will invariably be found that a mixture of foods gives better results than a single kind. In the notes which follow, some of the principal pig foods are briefly discussed, and suggestions given regarding their combination with other foods.

Peas. Whole peas are very palatable, but entirely too wasteful, as the hogs do not digest them thoroughly. Pea meal is a valuable food, but should never be fed alone. The heavy, close nature of the meal renders it difficult to digest, and the pigs are very apt to sicken. It combines well with barley, or barley and wheat middlings. A few well-ground oats may also be added. Peas are noted for the excellent quality of bacon which they produce.

Barley. This is a noted hog food in Europe, but some feeders in this country do not look upon it with favor. We have secured excellent results from barley, however, both in the amount of gain and in the quality of bacon. For young pigs it should be mixed with wheat middlings, a very little barley being used at first, and quantity gradually increased. For older pigs, peas or wheat may be added. Some succulent food, such as roots or green food, should always be fed with it, and skim milk makes a great improvement. It is not generally regarded with favor as a food for breeding sows.

Wheat. This grain has a higher feeding value than barley, but requires mixing with other meal to get the best results. It combines very well with barley, or barley and middlings.

Oats. Owing to the amount of fibre in this food, hogs cannot digest it so well as can cattle. Oats are more suitable for matured breeding stock than for young or fattenings pigs, though a little finely ground oats may be used in a mixture to give variety, and to lighten heavier meal, such as that from peas, wheat, or corn. For young pigs, they are better to have the coarser hulls sifted out.

Rye. Rye has a feeding value a little lower than wheat, and a little higher than barley. It may be used in practically the same way as wheat.

Corn. This is a fattening food, and not conducive to the development of bone and muscle. When fed alone, it gives poor results in producing gain in weight, and its bad influence upon the quailty of bacon has already been described. If fed at all, it should be mixed largely with barley or middlings, or both, and some form of succulent food or skim milk should always be fed with it. Owing to its tendency to produce soft bacon, it should be used as little as possible for hog feeding when bacon production is the object.

Middlings. This by-product is also called shorts, though some millers make a distinction between shorts and middlings. It is almost universally used for young pigs, and mixed with skim milk when such is available. If very floury, it is safer to mix a little bran with it, or some finely ground oats with the coarser hulls sifted out when used for very young pigs, otherwise it sometimes causes indigestion. Soaking for a few hours, or scalding, improves it for young pigs. It combines well with almost any kind of meal, and makes a good food for pigs of all ages.

Bran. The use of bran in pig feeding is rather limited. It contains too much fibre, and is rather too bulky to be fed in large quantity to pigs. Sometimes a little of it can be used to advantage for the purpose of diluting or lightening other foods, as has been indicated. It can be used in larger quantity for matured breeding stock, where the object is to hold the animals in light breeding condition.

Skim Milk. With the exception of whole milk, there is, perhaps, no food better suited to pigs of all ages than skim milk. It is especially beneficial in the case of young pigs, and tends to promote the development of bone and muscle. For fattening purposes

milk has been found to have the greatest feeding value per 100 pounds, when not more than three pounds of milk are fed for each pound of meal. Fed in this way, as low as 327 pounds of skim milk have proved equal to 100 pounds of meal. This is an exceptionally good showing, however. In Danish experiments, it required on an average about 600 pounds of milk to equal 100 pounds of meal, but in these cases a very much larger proportion of milk to meal was used than the proportion mentioned above. In feeding skim milk, therefore, the feeder must take into account the relative cost of milk and meal in deciding what proportions to feed.

A strong point in favor of skim milk is the excellent quality of bacon it produces. It tends to correct the evil influences of corn when fed in conjunction with that food, and our experience is that when it is used hogs produce firm bacon, though kept in comparatively close confinement.

Whey. Though unsuitable for very young pigs, a limited amount of whey gives very good results after the pigs are three or four months old. We have obtained the best results from whey feeding by using only enough whey to make the meal into a thick slop. When fed in this way, we have found that it requires from 12 to 14 pounds of whey to be equal in feeding value to one pound of meal. This is a very much higher feeding value for whey, however, than can be expected when it is fed in large quantity.

Its influence upon the firmness of bacon was very satisfactory, and it appeared to correct the bad influence of lack of exercise.

Sugar Beets. Hogs seem to prefer sugar beets to almost any other kind of roots. Some difference of opinion exists regarding the amount of roots that may be fed with profit to hogs. They should be fed in limited quantity to small pigs, but pigs weighing over 100 pounds live weight will, in some cases, take five or six times as much roots as meal by weight, and make very good gains. We have obtained our best results, however, by feeding equal parts by weight of roots and meal. The proportion of roots may be increased considerably, if thought advisable, as the hogs advance in weight.

In all our experiments we have obtained very satisfactory results from root feeding, so far as firmness of bacon is concerned.

Mangels. Though not quite so high in feeding value, mangels compare very favorably with sugar beets for hog feeding. If the hogs have not been fed sugar beets, they will eat mangels very readily. Their influence upon the firmness of bacon is the same as that of sugar beets.

Turnips. Hogs are not so fond of turnips as of mangels and sugar beets, but if they do not know the taste of either mangels or sugar beets they will eat a considerable quantity of turnips. Turnips are made more palatable by cooking, though it is doubtful whether cooking increases their actual feeding value, which is very similar to that of mangels. We have found the feeding of turnips along with a meal ration to give a firmer quality of bacon than when meal is fed alone.

Potatoes. Cooking is essential in order to get the best results from potatoes. If they can be cooked so as to leave them dry and mealy, hogs will eat them much more readily. They make a very palatable food when mashed and mixed with meal. Their influence upon the quality of bacon is also beneficial.

Artichokes. In some sections, this crop is very popular as a hog food. It is suitable, however, only for somewhat light, sandy soils. Artichokes may be planted in the late fall or early spring, in rows 21 to 24 inches apart, and from 12 to 18 inches apart in the rows. They are usually ready to feed about September 15th, and the hogs are turned in to dig for themselves. Frost does not injure them, and usually enough are left in the ground for another crop if it is thought advisable to leave them. When it is desired to eradicate them, the hogs may be turned on them again in the spring, and the plot subsequently sown with turnips.

Artichokes have a little higher feeding value than potatoes, and hogs are very fond of them.

Feeding Value of Roots. As has already been intimated, much of the feeding value of roots consists in their action upon the general health of the animal. They tend to prevent indigestion and constipation, and to promote general thrift. The results of our experiments, and of those conducted by other experiment stations, indicate that from 6 to 8 pounds of sugar beets, mangels or turnips are equivalent in feeding value to one pound of mixed meal, and that 4 to 4½ pounds of potatoes are equivalent to one pound of mixed meal. The meal equivalent of roots varies considerably, depending upon circumstances, but the figures given will serve as a general guide.

Rape. This is an exceptionally valuable food for swine, and may be pastured or cut and fed to the pigs in pens. For fattening hogs we have obtained best results from feeding about a two-thirds meal ration and all the rape the hogs will eat. The hogs were kept in pens with small outside yards, and the rape was cut and carried to them. This method of feeding gave more economical gains than fattening on pasture, and the bacon was of equally good quality.

For breeding sows, however, pasturing the rape is preferable, owing to the exercise it gives the animals. When on rape pasture, matured sows require little other food.

Young, growing sows, however, require a fairly liberal meal ration in addition to the rape.

Vetches. Hogs eat vetches even more readily than rape, but the vetches do not furnish so much food per acre. The vetches are ready for pasture a little earlier than the rape, and our common practice is to sow half our hog pasture with vetches, and half with rape. The sows are turned on the vetches first, and after this is eaten off they are turned on the rape, and the vetch ground is sown with rape to furnish pasture late in the season.

Vetches may also be used as a soiling crop, as described under rape.

Hairy Vetch. The seed of this crop is very expensive. There is no doubt, however, that it makes an excellent pasture crop for swine. If not pastured too closely, it grows up quickly when the hogs are removed. For early spring pasture it should be sown early in the fall, the latter part of August being a suitable time in most seasons. About 1 1-2 bushels of seed per acre are required.

It is our intention to modify our arrangement regarding our hog pasture, and to sow about one-third of it with hairy vetch and rye in the fall, and in the spring sow one-third with common vetches and one-third with rape. The hogs will then go on the rye and hairy vetches early in the spring, then on the common vetches, and then on the rape. The common vetch ground will be sown with rape as soon as the hogs leave it, and the hairy vetches and rye will make a second growth while the hogs are eating the first plot of rape. By this means we hope to provide pasture earlier in the season than our present plan permits.

Red Clover. This crop is best suited for pasture, and the hogs should be given quite a large range or the clover will likely be killed out. It is especially useful for breeding sows.

Alfalfa. Where the soil and other conditions are suitable, alfalfa makes an almost ideal pasture for swine. Care must be taken, however not to pasture too closely, or the crop may be destroyed. On the College farm, where a short rotation is practised and only a small plot is set apart for a hog pasture, we think we get more satisfactory results from annual crops.

Soja Bean. This crop makes a valuable soiling crop for swine, but is not suitable for pasture. It has a high feeding value, and is much better relished by swine. The crop is usually sown at the rate of half a bushel per acre in drills two feet apart. The medium green variety is quite satisfactory for this purpose. It is usually sown in the early part of May.

THE SELECTION AND FEEDING OF EXPORT CATTLE.

By A. P. Ketchen, Dominion Department of Agriculture, Ottawa.

Allow me to say at the outset that the success or failure of the cattle feeder depends, perhaps, quite as much on his ability to select his cattle as on any other factor. It matters little how skilful the feeding or how costly and complete the stables and equipment if the feeder make many mistakes in his selection. If, in a bunch of twenty cattle a man has five or six of the wrong sort, his chances for profit are very considerably diminished. A few rough, coarse feeders in a bunch not only makes unsatisfactory gains themselves, but spoil the appearance of the others, making it harder to sell to advantage.

To be a good judge of cattle for feeding purposes a man must have the natural intuition of the cattle man. The unerring eye that enables a man to make a close discrimination between the good and the bad in live stock is like an ear for music—more a natural gift than an acquired quality, and, like other gifts, it can be brought to perfection only by practice. No one yet has been able to describe so well the qualities to be looked for in a good feeding steer that any man might go out and, without previous experience, select a bunch of feeders without mistake.

Of all classes of cattle, stores are the hardest to judge. Fat cattle and even breeding stock must be judged for what they are as they appear before you at the time, but feeders must be judged for what they are likely to be five or six months later. In the one case, you are passing judgment on the finished product, in the other on a bundle of possibilities. Indications in good breeding, therefore, are of paramount importance in a lean feeder, for, if in any case we must gamble more or less on future possibilities, it is much safer to speculate on a well-bred bullock than on one of common or inferior breeding. If we believe in heredity at all, we must believe that the ability to lay on flesh thickly and in the right places is an hereditary trait.

Some of the most reliable indications of quality and breeding are to be found in the head. It is sometimes argued that the conformation of the head is of no importance in an animal intended for the block. In the finished animal this is probably true, but not so with the stocker. Many experienced cattle men attach quite as much importance to the conformation of the head as to that of any other part of the animal, not because the head has any value in itself, but because it is a very reliable index of the breeding and general character of the animal. The face should be broad between the eyes, and short from the eyes to the muzzle, with a fine, clean-cut appearance. The muzzle should be large and well defined. It is said that a large muzzle and mouth indicate a large digestive digestive tract, and that the nostrils are an indication of the lung power, which is second in importance only to the digestive capacity. Whether this be true or not, I do not think I have ever known a good feeder with a small muzzle. The eyes should be full and bright, but calm and placid. A fiery, restless eye indicates the wrong kind of nervous temperament for a feeder; and on the other hand, a small, dull, sunken eye indicates a sluggish circulation and a low vitality. A long, narrow, pinched looking face is to be avoided ; it is almost always associated with a general spareness throughout.

In bodily conformation the feeder should be deep, thick, blocky and low set. It is important that we have a long and well sprung rib, giving him a wide level back and a large middle. I do not wish to be understood as advocating a paunchy animal. This is an undesirable extreme, and is usually an indication of unthriftiness ; but a steer must be deep and full in both the fore and hind flank to give him plenty of room in front for the heart and lungs, and ample storage for hay back of that. It is folly to put good feed into a light, middled steer and hope for satisfactory gains. Mr. Amos Cruickshank, who, perhaps, has done more than any other man to develop a race of cattle that could turn straw, turnips, and hay into beef at a profit, was uncompromising on this point. If an animal had a light "middle," he would have none of him: no amount of excellence in other particulars would compensate in his judgment for this deficiency. He argued that if a beast's ribs were well sprung, giving him a broad back on which to carry flesh, and long, giving him a great capacity of food, the extremities could not be very far wrong.

Smoothness is another important feature of a good feeder. Coarseness of bone, large, rough joints, and angularity of frame, usually go together, and an animal having these characteristics is exceedingly hard to finish. He may make large enough gains for food consumed, but he does not show it; you cannot get him covered; and when you put him on the market he appears at a disadvantage and will not command the highest price. He should be medium in bone and smooth over the shoulders and hooks, to cover evenly and smoothly with flesh.

The skin is another valuable indication of the feeding qualities of a bullock. It should be soft, mellow, and loose; you should be able to pick up a handful of it any place. It should be covered with a thick coat of fine glossy hair, which looks and feels as though it had some life in it. A hard, harsh skin, with a dry, staring coat indicates a feeble circulation and general lack of thrift. This may be due to some temporary causes, and once in a long time a bad handler will respond to good care and feeding, but this happens so seldom that it is always safer to let some one else make the experiment. If a steer comes off the grass in bad condition, he is not likely to make good gains on winter feed.

As to the best age at which to buy feeders, opinions differ. A well-grown two year old in tolerably good flesh is usually the most profitable; but a lean and undersized two-year-old will usually start to grow when put on good feed, and although he will make large gains for food consumed, it is almost impossible to get him fat enough in one season, and it is usually necessary to give him a run at grass the following summer to get him finished.

Feeders are sometimes at a loss to know whether it is better to put in heavy half-fed steers with a view to getting them finished by January or February, or to put in lighter and leaner cattle to carry through until May. This can be determined only by the relative prices To make a profit on May cattle, the feeder should have a margin between the buying and selling prices about $1.00 per cwt. Short-keep steers can be fed on a somewhat closer margin, but they are usually so much in demand that they cannot be bought for much less than the export price. In any case it is important that steers go into winter quarters in a good, sappy, thrifty condition, and carrying a fair amount of flesh. Cattle that are so lean in the fall that they require heavy feeding throughout a long season in order to get them finished in time can seldom be fed at a profit.

It is a mistake to allow cattle to run out at grass exposed to all sorts of weather too late in the fall. Cattle exposed to cold rains, or lying out on frosty nights and filling up on frosted grass in the mornings are not making any money for their owners. If rough fall pasture is plentiful and winter food scarce, there is a strong temptation to leave them out as long as possible. It is, nevertheless, poor economy. Not only do the cattle loose flesh before going into the stable, but they continue to loose for some time after being tied up. A changing period is nearly always a losing period; but the loss is very much reduced if the change is made as gradual as possible. The cattle should be brought under shelter on very cold nights, and especially from cold rains, given a feed of hay or turnips, and turned out again for grass as soon as the weather moderates. In this way they gradually become accustomed to winter quarters and dry feed, so that the change from summer to winter conditions is not so abrupt and violent. If this be done the cattle will be fully fifty pounds per head heavier on the first of January than if allowed to run at grass until the snow flies, and then brought in and put at once on winter rations.

No one can lay down rules for another as to how he should feed his cattle during the winter. Conditions vary so much that every man must be a law unto himself and compound his own winter rations according to his own best judgment. One essential is an abundant supply of cheap winter food. Throughout a large part of Canada ensilage has become almost a necessity. There may be some districts in which roughage can be more cheaply supplied in the form of hay; but even there something succulent in the form of ensilage or roots is almost essential to the best results. I know of no better combination than clover hay and good corn ensilage; the one seems to be the exact complement of the other. Both are very palatable to cattle and should be fed separately for the sake of variety. A bunch of cattle getting a good feed night and morning of cut straw and ensilage, mixed

twelve hours before feeding, and all the long clover hay they will eat at noon, are about as well off for roughage as they well could be. I do not know any other ration on which cattle can be kept so full all the time without putting them off their feed, and every cattleman knows that the secret of success in cattle feeding lies largely in knowing how to keep the cattle full every day. The ration should be made so palatable that, after every feeding period they will lie down, as full as a "Hielandman," and fairly "groan beneath the load of good things."

The grain may be fed night and morning, mixed with the cut straw and ensilage. In the early part of the season, very little grain should be fed, and the allowance gradually increased from week to week. I believe that we have been wasting a great deal of grain by over-feeding in the early part of the winter. It is an easy matter to ruin the digestion of a steer by feeding too much grain for any considerable length of time.

When cattle are put on a heavy ration of grain they will make rapid gains for a time, probably for two months, and then they seem to come to a standstill and make little or no improvement; a number of them go off their feed, and the feeder gets himself into all sorts of trouble. The point to be determined is not the amount of grain that we can get an animal to consume, but the amount he is able to digest and assimilate.

A mixture of grain will always give better results than any single variety fed alone. If any peas are to be fed, it is good practice to keep them until the close of the feeding period. No other grain, I think, will put so good a finish on cattle as peas. A little pea meal fed during the last month seems to firm the cattle up and make them handle and weigh just a little better than anything else I know, but they are so strong feed, and so hard to digest, that they cannot usually be fed with advantage for more than five or six weeks unless it be in very small quantities.

Let me mention a few of the smaller details and close. In the first place I would say that regularity is one of the first principles of good feeding. When an animal is used to getting its food at a certain time every day, it will rise and look for it as regularly as clockwork, and if disappointed will become impatient and fret. This weakens the digestive organs so much that they are not in a fit condition to digest and assimilate the food when they do get it. Another important matter is to make the cattle comfortable and induce them to lie down as much as possible, allowing no one to disturb them except at feeding time. A mistake of which many, if not all of us, have sometimes been guilty is that of tying up more cattle than we could feed and bed properly ; so that we were compelled to use a lot of straw for feed that we should have used for bedding. I believe that straw that is musty or damaged in any way will make more beef when used for bedding than when cut up and forced on the cattle by mixing with better feed.

In conclusion, I wish to say that kindness pays. If a man would succeed in the cattle business he must treat his cattle kindly and work among them quietly. After all the cattle man himself is the most important factor in the business : A man who can so plan his work that it will always be done at the right time, and yet is never in a hurry and is never out of patience. A rough, noisy, blustering man is worse than useless on a cattle farm. The late John MacMillan, who was one of the best cattle feeders in Canada, used to say that he would dismiss a man on the spot if he caught him abusing the cattle. He argued, and I believe rightly, that if a steer is unduly annoyed or excited it will take three days of good feeding to make up the loss. So, you see, it is not a matter of mere sentiment, but a matter of dollars and cents when I say look carefully after these small details of the business. There is no royal road to success in cattle raising; it is the attention to, or neglect of, the apparently trifling details that makes for success or failure.

Q. : Do you mix the meal with the cut straw and silage ?

A. . Yes, we mix it twelve hours before feeding, and feed it night and morning.

Q. : What is the ration ?

A. : It varies with the cattle and with the time of the year. We start our cattle off with three or four pounds of grain per day in January and gradually increase the amount

to about twelve pounds a day. If you commence with too much grain, you are liable to injure the steer's digestion. I believe that many feeders are wasting a lot of grain by overfeeding.

Q. : When you are feeding the maximum amount of grain per day what will be the amount of gain per day ?

A. : We do not weigh every week ; it is almost impracticable. I can give you only an estimate of what they would gain during the feeding period of five months,—300 lbs. is a good average for a bunch of cattle for that period.

Q. : Is it more profitable to use cut hay with the silage rather than straw ?

A. : That all depends on the relative quality and price. For cattle I would rather have good oat straw than a low grade timothy hay. But clover hay of good quality is certainly worth much more than straw. I do not think we can raise much better feed for winter feeding than clover hay and corn silage, one being the exact complement of the other. But most of us have a large amount of straw on our farms, which we desire to use to best advantage. If we cut it and feed it with silage, the cattle will eat it readily, and it may be profitably utilized in that way.

Q. : Is silage a good substitute for turnips ?

A. : That will depend on the locality. Where turnips can be grown to good advantage, I am not sure that silage is to be preferred. I would prefer both to either.

Q. : Do you prefer oat straw to wheat straw to mix with silage ?

A. : Yes.

Q. : What about well cured pea straw ?

A. : If the peas are pulled a little on the green side, and cured without rain, pea straw is an excellent feed, cut and mixed with silage. Cutting the straw and mixing with ensilage to feed night and morning, and feeding long hay at noon, together with a few roots, varies the ration and keeps the cattle hearty and ready for their feed. I know of no other ration on which you can keep the cattle so full without putting them off their feed, and that is one of the secrets of success in cattle feeding.

Q. : Are sugar beets as good as turnips ?

A. : Yes, I think so What do you call sugar beets ? Many farmers are growing what the seedsmen call sugar beets, which are merely mangels.

Q. : Do you prefer mangels or turnips ?

A. : I do not think there is much difference between mangels and tnurnips in feeding value, but bushel for bushel, load for load, I would prefer turnips.

Q. : Have you had any experience in feeding black oat dust ?

A. : Yes, but it has not been very satisfactory. Feeding cattle will not take much of it, but young cattle which are being fed on rough feed will take it readily enough.

Q. : What is your opinion or bran ?

A. : If you are feeding a large amount of silage, there is nothing much better than bran or pea meal.

Q. : In finishing cattle, do you insist on sticking to a balanced ration ?

A. : I do not believe it is possible for a man to sit down and feed from a table,—to say that an animal shall consume so much carbo-hydrates, so much protein, and so much fat, etc. Some animals will digest a greater proportion of nitrogenous food than others; but there is an approach to a balanced ration which I certainly believe in. It is well to remember that "balanced ration" is a relative term, and that a ration that may be just right for one animal may be out of balance with the requirements of another.

PRIZE WINNERS.

CATTLE.

Shorthorns.

Steer, 2 yrs. and under 3. One entry.

1. James Rennie & Sons, Blackwater Junct., Moss-Side Lad.

Steer, 1 yr. and under 2. Two entries.

1. Jas. Rennie & Sons, Moss-Side Laddie. 2. Jas. Rennie & Sons, Captain Tom.

Cow or Heifer, 3 yrs. and over. Three entries.

1. W. C. Edwards & Co., Rockland, Belle of Belleview, 45297.
2. W. C. Edwards & Co., Rockland, White Flower 3rd, 44899.
3. W. C. Edwards & Co., Rockland, Proud Sunshine, 43548.

Heifer, 2 yrs. and under 3. Three entries.

1. W. C. Edwards & Co., Rockland, Lady Lancaster Vol. 20.
2. W. C. Edwards & Co., Rockland, Golden Bud Vol. 19.
3. W. C. Edwards & Co., Rockland, Orange Blossom Vol. 19.

Heifer, under 2 yrs. Four entries

1. Jas. Rennie & Sons, Blackwater Junction, Crimson Flower Belle Vol. 58.
2. W. C. Edwards & Co., Rockland, Zoe of Pine Grove 2nd, Vol. 19.
3. W. C. Edwards & Co., Rockland, Lucy of Pine Grove Vol. 19.

Galloway or Devon.

Steer or Heifer, 2 yrs. and under 3. Two entries.

1. D. McCrae, Guelph, Maid of the Mist, 21054. 2. D. McCrae, Fairy Rose, 20560.

Steer or Heifer, 1 yr. and under 2. One entry.

1. D. McCrae, Guelph, Belle of Guelph, 23059.

Cow or Heifer, 3 yrs. and over. One entry.

1. D. McCrae, Guelph, Grizel 11th, 19452.

Grade or Cross.

Steer, 2 yrs. and under 3. Three entries.

1. G. B. Hood, Guelph, Tom.

Steer, 1yr. and under 2. Four entries.

1. G. B. Hood, Guelph, Jerry.

Cow or Heifer, 3 yrs. and over. Three entries.

1. Robt. Young, Ospringe, Erin Beauty.

Heifer, under 2 yrs. Two entries.

1. James Rennie & Sons, Blackwater Junct., Crimson Beauty.

Dressed Carcass Purebred. One entry

1. W. C. Edwards & Co., Rockland, Belle of Belleview.

Dressed Carcass, Grade. Two entries.

1. G. B. Hood, Guelph, Guelph Roger.

Three Export Steers. Three entries.

1. James Stone, Saintfield. 2. G. B. Hood, Guelph. 3. G. B. Hood, Guelph.

Best Grade Steer, sired by Shorthorn Bull. Six entries.

1. James Stone, Saintfield. 2. G. B. Hood, Guelph, Tom.

SHEEP.

Cotswold.

Wether, 1 yr. and under 2. One entry.

1. Snell & Lyons, Snelgrove, Glanworth.

Wether, under 1 yr. Four entries.

1. Snell & Lyons, Norval Hero. 3. Snell & Lyons, Snelgrove Dick.
2. Snell & Lyons, Snelgrove King.

Ewe, under 1 yr. Four entries.

1 Snell & Lyons, Norval Maid, 29742.
2. Snell & Lyons, Snelgrove Gem, 29743.
3. Snell & Lyons, Norval Lass, 29742.

Dressed Carcass Wether, under 1 yr. Two entries.

1. Snell & Lyons, Snelgrove.

OXFORD.

Wether, 1 yr. and under 2. Two entries.

1. J. H. Jull & Son, Burford, Brant Boy, 100. 2. J. H. Jull & Son, Brant Boy, 96.

Wether, under 1 yr. Four entries.

1. W. E. Wright, Glanworth, A. E., 171.
2. J H. Jull & Son, Brant Boy, 459.
3. J. H. Jull & Son, Brant Boy, 460.
4. J. H. Jull & Son, Brant Boy, 461.

Three Wethers, under 1 yr. One entry.

1. J. H. Jull & Son, Burford.

Ewe, under 1 yr. Five entries.

1. J. H. Jull & Son, Brant Heroine, 438.
2. J. H. Jull & Son, Brant Heroine, 439.
3. J. H. Jull & Son, Brant Heroine, 441.

Dressed Carcass Wether, under 1 yr. Two entries.

1. W. E. Wright, Glanworth.
2. J. H. Jull & Son, Burford.

SHROPSHIRE.

Wether, 1 yr. and under 2. Two entries.

1. Lloyd-Jones Bros., Burford.

Wether, under 1 yr. Eight entries.

1. W. E. Wright, Glanworth, Wright's 444.
2. W. C. Edwards & Co., Rockland.
3. Lloyd-Jones Bros., Burford.
4. Lloyd-Jones Bros., Gurney's 700.

Three Wethers, under 1 yr. Three entries.

1 Lloyd-Jones Bros., Burford.
2. W. C. Edwards & Co., Rockland.

Ewe, under 1 yr. Five entries.

1. Lloyd-Jones Bros., Burford.
2. Lloyd-Jones Bros., Burford.
3 W. C. Edwards & Co., Rockland.
4. Lloyd-Jones Bros., Burford.

Dressed Carcass Wether, under 1 yr. Six entries.

1. W. E Wright, Glanworth.
2. W. C. Edwards & Co., Rockland.
3. Lloyd-Jones Bros., Burford.
4 Lloyd-Jones Bros., Burford.

HAMPSHIRE OR SUFFOLK.

Wether, under 1 yr. Six entries.

1. James Bowman, Guelph, Bowman's 563.
2. James Bowman, Bowman's 82, D. 319.
3. James Bowman, Bowman's 85, D. 601.

Ewe, under 1 yr. Four entries.

1. James Bowman, Guelph, Bowman's 731.
2. James Bowman, Bowman's 733.
3. James Bowman, Bowman's 734.

Dressed Carcass Wether, under 1 yr. Three entries.

1 James Bowman, Guelph.

GRADE OR CROSS.

Wether, 1 yr. and under 2. Two entries.

1. Lloyd-Jones Bros., Burford.

Three Wethers, under 1 yr. One entry.

1 Lloyd-Jones Bros., Burford.

Wether, under 1 yr. Four entries.

1. Lloyd-Jones Bros.
2. Lloyd-Jones Bros.
3. Lloyd-Jones Bros.

Dressed Carcass Wether, under 1 yr. One entry.

1. Lloyd-Jones Bros., Burford.

SWINE.

Berkshires.

Barrow, 6 mos. and under 9. Five entries.

1. Snell & Lyons, Snelgrove, Snelgrove Albert.
2. R. Reid & Co., Hintonburg, Joe.
3. Snell & Lyons, Sam.
4. R. Reid & Co., Hintonburg, Tom.

Barrow, under 6 mos. Five entries.

1. Snell & Lyons, Snelgrove Bert.
2. Snell & Lyons, Snelgrove Jack.
3. Snell & Lyons, Snelgrove Tim.

Sow, 6 mos. and under 9. Five entries.

1. Snell & Lyons, Snelgrove Edith.
2. Snell & Lyons, Snelgrove Pet.
3. R. Reid & Co., Hintonburg.
4. Snell & Lyons, Snelgrove Fashion.

Sow, under 6 mos. Five entries.

1. R. Reid & Co., Hintonburg.
2. Snell & Lyons, Snelgrove Jewel.
3. Snell & Lyons, Snelgrove Bess.
4. Snell & Lyons, Snelgrove Topsy.

Yorkshires.

Barrow, 6 mos. and under 9. Three entries.

1. J. E. Brethour, Burford.
2. J. E. Brethour,
3. J. E. Brethour,

Barrow, under 6 mos. Three entries.

1. J. E. Brethour,
2. J. E. Brethour,
3. J. E. Brethour,

Sow, 6 mos. and under 9. Three entries.

1. J. E. Brethour, Burford, O. L. Queen Bess 50, 13665.
2. J. E. Brethour, O. L. Pride 73, 13681.
3. J. E. Brethour, O. L. Clara 45, 14319.

Sow, under 6 mos. Seven entries.

1. J. E. Brethour, Burford, O. L. Queen Bess 58, 14327.
2. J. E. Brethour, Burford, O. L. Queen Bess 59, 14328.
3. J. G. Clark, Ottawa, Woodruffe Choice.
4. J. E. Brethour, Burford, O. L. Queen Bess 60, 14329.
5. J. G. Clark, Ottawa, Woodruffe Choice 2nd.

Tamworth.

Barrow, 6 mos. and under 9. Three entries.

1. R. Reid & Co., Hintonburg.
2. R. Reid & Co.
3. R. Reid & Co.

Sow, 6 mos. and under 9. Three entries.

1. R. Reid & Co.
2. R. Reid & Co.
3. R. Reid & Co.

Sow, under 6 mos. Three entries.

1. R. Reid & Co.
2. R. Reid & Co.
3. R. Reid & Co.

Grade or Cross.

Barrow, 6 mos. and under 9. Two entries.

1. R. Reid & Co., Hintonburg.
2. H. Stuart, Burford.

Barrow, under 6 mos. Three entries.

1. R. Reid & Co., Hintonburg.
2. H. Stuart, Burford.

Sow, 6 mos. and under 9. Two entries.

1. R. Reid & Co., Hintonburg.
2. H. Stuart, Burford.

Sow, under 6 mos. Three entries.

1. R. Reid & Co., Hintonburg.
2. H. Stuart, Burford.

Three Export Bacon Hogs, Pure-bred. Nine entries

1. J. E. Brethour, Burford.
2. J. E. Brethour, Burford.
3. R. Reid & Co., Hintonburg.
4. J. E. Brethour, Burford.
5. R. Reid & Co., Hintonburg.
6. J. E. Brethour, Burford.
7. R. Reid & Co., Hintonburg.
8. Wm. Ormiston, Jr., Columbus.

Three Export Bacon Hogs, Grade or Cross. Three entries.

1. R. Reid & Co., Hintonburg
2. H. Stuart, Burford.
3. H. Stuart, Burford.

Three Export Bacon Hogs. Two entries.

1. J. E. Brethour, Burford.
2. R. Reid & Co., Hintonburg.

Best Pen of Four Bacon Hogs. Naisbit Special. One entry.

1. J. E. Brethour, Burford.

Three Pure Bred Dressed Carcasses. Nine entries.

1. R. Reid & Co., 243, 244, 245.
2. R. Reid & Co., 249, 250, 251.
3. R. Reid & Co., 252, 253, 255.
4. J. E. Brethour, 240, 241, 242.
5. J. E. Brethour, 234, 235, 236.
6. J. E. Brethour, 237, 238, 239.
7. Wm. Ormiston, Jr., Columbus, 247, 248, 249.

Three Grade or Cross Dressed Carcasses. Three entries.

3. H. Stuart, Burford. 2. H. Stuart. 1. R. Reid & Co.

Three Best Carcasses. Four entries.

1. R Reid & Co. 2. R. Reid & Co. 3. H. Stuart, Burford.

DAIRY TEST EASTERN ONTARIO LIVE STOCK SHOW 1904.

Shorthorn Cow, 36 months and over.

Name.	Owner.	Lbs. milk.	Per cent fat.	Lbs. fat.	Lbs. solids not fat.	Points for days milk.	Points for fat.	Points for solids not fat.	Total points.	Prize.
Lilly of Robin Hill.....	Wm. Ormiston, Columbus ...	65.60	3.5	2.30	6.11	3.6	46.0	24.44	71.04	1st

Shorthorn Heifer, under 36 months.

Name.	Owner.	Lbs. milk.	Per cent fat.	Lbs. fat.	Lbs. solids not fat.	Points for days milk.	Points for fat.	Points for solids not fat.	Total points.	Prize.
Marchioness 23rd.....	Wm. Ormiston, Columbus	[illegible]	[illegible]	0.88	2.44	10.	17.6	9.76	37.36	1st

Ayrshire Cow, 36 months and over.

Name.	Owner.	Lbs. milk.	Per cent fat.	Lbs. fat.	Lbs. solids not fat.	Points for days milk.	Points for fat.	Points for solids not fat.	Total points.	Prize.
Lady Nancy	J. G. Clark, Ottawa	[illegible]	3.8	3.68	[illegible]	5.2	73.6	34.36	113.16	1st
Brown [illegible]	Reid & Co., Hintonburg	[illegible]	3.7	[illegible]	9.14	0	72.4	[illegible]	[illegible]	2nd
Meda of Meadowside		[illegible]	3.5	3.43	[illegible]	0.8	68.6	37.92	[illegible]	[illegible]
[illegible]	J. G. Clark, Ottawa	94.7	3.7	[illegible]	8.62	0.6	70.0	[illegible]	[illegible]	4th
Nellie of Maple Cliff	Reid & Co., Hintonburg	[illegible]	3.5	3.34	9.04	0.1	66.8	36.16	[illegible]	[illegible]
[illegible] Ottawa		[illegible]	3.8	3.37	8.31	0	67.4	33.24	100.64	6th
[illegible]	J. G. Clark, Ottawa	[illegible]	3.9	[illegible]	8.02	0.2	98.88	32.08	98.88	7th
Victoria of Maple Cliff	Reid & Co., Hintonburg	71.85	3.2	2.30	6.90	9.6	46.0	27.6	83.2	8th

Ayrshire Heifer, under 26 months.

Name.	Owner.	Lbs. milk.	Per cent fat.	Lbs. fat.	Lbs. solids not fat.	Points for days milk.	Points for fat.	Points for solids not fat.	Total points.	Prize.
Maple Cliff Snowdrift ...	Reid & Co., Hintonburg	40.55	[illegible]	15.4	3.91	10.	30.8	15.76	[illegible]	1st

Holstein Cow, 36 months and over.

Name.	Owner.	Lbs. milk.	Per cent fat.	Lbs. fat.	Lbs. solids not fat.	Points for days milk.	Points for fat.	Points for solids not fat.	Total points.	Prize.
Lady Colanthus De Kol.	N. Sangster, Ormiston, Que.	151.8	3.4	5.61	13.95	1.5	112.2	55.8	169.5	1st

Grade Cow, 36 months and over.

Name.	Owner.	Lbs. milk.	Per cent fat.	Lbs. fat.	Lbs. solids not fat.	Points for days milk.	Points for fat.	Points for solids not fat.	Total points.	Prize.
Carrie	Reid & Co., Hintonburg.....	103.2	4.2	4.33	9.86	0	86.6	39.44	[illegible]	1st
Spot.....	" "	108.25	3.8	4.09	10.31	0.2	81.8	41.24	123.24	2nd
Roan	" "	104.5	3.8	3.97	9.37	2.0	79.4	37.48	[illegible]	3rd
Lady	" "	97.15	3.5	3.4	8.80	2.3	68.	35.2	105.5	4th

Grade Heifer, under 36 months.

Name.	Owner.	Lbs. milk.	Per cent fat.	Lbs. fat.	Lbs. solids not fat.	Points for days milk.	Points for fat.	Points for solids not fat.	Total points.	Prize.
Rose of Robin Hill	W. Ormiston, Columbus.....	48.	4.6	[illegible]	4.8	10.	44.2	17.92	72.12	1st

POULTRY.

Brahmas, Light.

Cocks, 2.—1st, W. B. Nantel; 2nd, D. Cumming.
Hens, 5.—1st, C. LaRose; 2nd, W. B. Nantel.
Cockerels, 6.—1st, F. Wales; 2nd, F. Wales; 3rd, Jno. A. Belford.
Pullets, 8.—1st, Jno. A. Belford; 2nd, Jno. A. Belford; 3rd, C. LaRose.

Brahmas, Dark.

Cocks, 3.—1st, L. C. Sage; 2nd and 3rd, W. B. Nantel.
Hens 3.—1st, L. C. Sage; 2nd and 3rd, W. B. Nantel.
Cockerels, 3.—1st and 2nd, W. B. Nantel; 3rd, L. C. Sage.
Cockerels, 6.—1st and 2nd, A. W. Bell; 3rd and 4th, W. B. Nantel.
Pullets, 3.—1st, L. C. Sage; 2nd and 3rd, W. B. Nantel.

Buff Cochins.

Cocks, 5.—1st, A. W. Bell; 2nd, W. B. Nantel; 3rd and 4th, A. W. Bell.
Hens, 6.—1st, A. W. Bell; 2nd, G. & J Bogue; 3rd and 4th, A. W. Bell.
Pullets, 6.—1st, W. B. Nantel; 2nd, 3rd and 4th, A. W. Bell.

Partridge Cochins.

Cocks, 2.—1st, R. Oke; 2nd, W. B. Nantel.
Hens, 4.—1st and 2nd, R. Oke; 3rd, W. B. Nantel.
Cockerels, 6.—1st and 2nd, W. B. Nantel; 3rd, R. Oke; 4th, F. Wales.
Pullets, 6.—1st, F. Wales; 2nd, R. Oke; 3rd, W. B. Nantel; 4th, R. Oke.

Black Cochins.

Cocks, 3.—1st, R. Oke; 2nd, G. & J. Bogue; 3rd, A. & T. Readwin.
Hens, 4.—1st, R. Oke; 2nd, W. B. Nantel; 3rd, G. & J. Bogue.
Cockerels, 3.—1st, W. B. Nantel; 2nd, G. & J. Bogue; 3rd, R. Oke.
Pullets, 4.—1st, A. & T. Readwin; 2nd, R. Oke; 3rd, G. & J. Bogue.

White Cochins.

Cocks, 3.—1st, R. Oke; 2nd, W. B. Nantel; 3rd, G. & J. Bogue.
Hens, 3.—1st, R. Oke; 2nd, W. B. Nantel; 3rd, G. & J. Bogue.
Cockerels, 4.—1st, W. B. Nantel; 2nd, G. & J. Bogue; 3rd, R. Oke.
Pullets 4.—1st, W. B. Nantel; 2nd, R. Oke; 3rd, G. & J. Bogue.

Langshans.

Cocks, 2.—1st, E. J. Dewey; 2nd, Hintonburg Poultry Yards.
Hens, 6.—1st, A. Delcorde; 2nd, W. J. Slessor; 3rd, A. Delcorde; 4th, E. J. Dewey.
Cockerels, 5.—1st, W. J. Slessor; 2nd, W. J. Slessor; 3rd and 4th, E. J. Dewey.
Pullets, 4.—1st and 2nd, W. J. Slessor; 3rd, E. J. Dewey.

S. G. Dorkings.

Hens 2.—1st, W. Stewart & Son; 2nd, G. & J. Bogue; 3rd, W. Ellis.
Cockerels, 1.—1st, W. Stewart & Son.
Pullets, 3.—1st and 2nd, G. & J. Bogue; 3rd, W. Stewart & Son.

Colored Dorkings.

Cocks 2.—1st, J. H. Warrington; 2nd, W. Stewart & Son.
Hens, 3.—1st, J. H. Warrington; 2nd and 3rd, W. Stewart & Son.
Cockerels, 2.—1st, W. Stewart & Son; 2nd, J. H. Warrington.
Pullets, 2.—1st, W. Stewart; 2nd, J. H. Warrington.

White Dorkings.

Cocks, 2.—2nd, J. H. Warrington; 3rd, A. & T. Readwin.
Hens, 4.—1st, A. & T. Readwin; 2nd, J. H. Warrington; 3rd, G. & J. Bogue.
Cockerels, 2.—1st, J. H. Warrington; 2nd, A & T. Readwin.
Pullets, 2.—1st, A. & T. Readwin; 2nd, J. H. Warrington.

Orpingtons.

Cocks, 6.—1st, A. W. E. Hellyer; 2nd, Jos. S. Allen; 3rd and 4th, C. J. Daniels.
Hens 9.—1st, Geo. Degroff; 2nd, Jos. S. Allen; 3rd and 4th, C. J. Daniels.
Cockerels, 14.—1 and 3, C. J. Daniels; 2, Wm. C. Hugg; 4, W. H. Smeeing.
Pullets, 23.—1, S. W. Frion; 2, A. W. Hellyer; 3, H. D. Leitch; 4, F. Chinneck.

Barred Plymouth Rocks.

Cocks, 4.—1, Hintonburg P.Y.; 2, J. E. Fidler; 3, F. A. James; 4, J. V. Watson.
Hens, 5.—1st, S. Short; 2nd, Hintonburg P.Y.; 3rd, J. V. Watson; 4th, J. E. Fidler.
Cockerels, 9.—1, C. LaRose; 2, J. E. Fidler; 3, J. V. Watson; 4, Hintonburg P.Y.
Pullets, 11.—1st, C. LaRose, 2nd, F. A. James; 3rd, S. Short; 4th, Hintonburg P.Y.

White Plymouth Rocks.

Cocks, 4.—1st and 2nd, Hazelbrae Poultry Yards; 3rd, F. A. Andrews.
Hens, 4.—1st, F. A. Andrews; 2nd and 3rd, Hazelbrae Poultry Yards.
Cockerels, 5.—1st and 2nd, F. A. Andrews; 3rd and 4th, Hazelbrae Poultry Yards.
Pullets, 7.—1st and 2nd, Hazelbrae Poultry Yards; 3rd and 4th, F. A. Andrews.

Buff Plymouth Rocks.

Cocks, 1.—1st, D. Cumming. *Cockerels*, 2.—1st, C. Pillar; 2nd, D. Cumming.
Hens, 2.—1st & 2nd, D. Cumming. *Pullets*, 3.—1st, C. Pillar; 2nd & 3rd, D. Cumming.

Golden Wyandottes.

Cocks, 6.—1st, F. J. Blake; 2nd, J. H. Magill; 3rd, C. J. Daniels.
Hens, 6.—1st and 2nd, J. H. Magill; 3rd, J. A. Dalglish.
Cockerels, 2.—1st, J. H. Magill; 2nd, F. J. Blake.
Pullets 4.—1st, J. H. Magill; 2nd, F. J. Blake; 3rd and 4th, C. J. Daniels.

Silver Wyandottes.

Cocks, 4.—1, G. & J. Bogue; 2, A. & T. Readwin; 3, Hintonburg P.Y., F. J. Blake.
Hens, 6.—1st, G. & J. Bogue; 2nd, A. & T. Readwin; 3rd and 4th, F. J. Blake.
Cockerels, 4.—1st, F. J. Blake; 2nd and 3rd, G & J. Bogue; 4th, Hintonburg P.Y.
Pullets, 5.—1st and 2nd, G. & J. Bogue; 3rd, F. J. Blake.

Buff Wyandottes.

Cocks, 3.—1st, Rev. S. T. Bartlett; 2nd, Thos. F. McCabe; 3rd, Rev. S. T. Bartlett.
Hens, 3.—1st, Thos. F. McCabe; 2nd and 3rd, Rev. S. T. Bartlett.
Cockerels, 5.—1st, Thos. F. McCabe; 2nd, Geo. Higman; 3rd, Rev. S. T. Bartlett.
Pullets 5.—1st & 3rd, Rev. S. T. Bartlett; 2nd, Thos. F. McCabe; 4th, Geo. Higman.

White Wyandottes.

Cocks, 1.—1st, S. Short. *Hens*, 3.—1st and 2nd, Geo. Higman; 3rd, F. Wales.
Cockerels, 5.—1st and 2nd, O. E. Culbert; 3rd, Geo. Higman.
Pullets, 9.—1st and 2nd, Geo. Higman; 3rd, O. E. Culbert.

Black Java.

Cocks, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Hens, 5.—1st, R. Oke; 2nd and 3rd, W. H. Reid; 4th, G. & J. Bogue.
Cockerels, 3.—1st, R. Oke; 2nd, C. J. Daniels; 3rd, W. H. Reid.
Pullets, 4.—1st, W. H. Reid; 2nd, R. Oke; 3rd, C. J. Daniels; 4th, W. H. Reid.

Mottled Java.

Cocks, 3.—1st, G. & J. Bogue; 2nd, W. H. Reid; 3rd, C. J. Daniels.
Hens, 3.—1st and 2nd, W. H. Reid; 3rd, G. & J. Bogue.
Cockerels, 3.—1st, G. & J. Bogue; 2nd, R. Oke; 3rd, W. H. Reid.
Pullets, 3.—1st, G. & J. Bogue; 2nd, R. Oke; 3rd, W. H. Reid.

Rhode Island Reds.

Cocks, 3.—1st, C. J. Daniels; 2nd, A. Delcorde.
Hens, 3.—1st and 2nd, A. Delcorde; 3rd, C. J. Daniels.
Cockerels, 1.—1st, A. Delcorde. *Pullets*, 2.—1st, A. Delcorde; 2nd, C. J. Daniels.

Spanish.

Cocks, 3.—1st, J. H. Warrington; 2nd, G. & J. Bogue; 3rd, J. H. Warrington.
Hens, 4.—1st and 2nd, J. H. Warrington; 3rd, G. & J. Bogue.
Cockerels, 4.—1st and 2nd, J. H. Warrington; 3rd, G. & J. Bogue; 4th, D. Cumming.
Pullets, 4.—1st and 2nd, J. H. Warrington; 3rd, G. & J. Bogue; 4th, D. Cumming.

Andalusians.

Cocks, 1.—1st, Chas. LaRose. *Hens* 3.—1st and 2nd, Thos. Wardell; 3rd, Chas. LaRose.
Cockerels, 2.—1st, Thos. Wardell; 2nd, Chas. LaRose. *Pullets*, 1.—1st, Chas. LaRose.

Black Minorcas.

Cocks, 4.—1st, Hintonburg P.Y.; 2nd, W. Wallace; 3rd, Geo. A. McInnis; 4th, A. Delcorde.
Hens, 6.—1st, A. Delcorde; 2nd, A. Delcorde; 3rd, Hintonburg P.Y.; 4th, A. Delcorde.
Cockerels, 7.—1, W. Ellis; 2, Geo. A. McInnis; 3, A. Delcorde; 4, Hintonburg P.Y.
Pullets, 10.—1st and 2nd, W. Wallace; 3rd, A. Delcorde; 4th, Hintonburg Poultry Yards.

White Minorcas.

Cocks, 1.—1st, W. M. Osborne. *Cockerels*, 1.—1st, W. M. Osborne.
Hens 1.—1st, W. M. Osborne. *Pullets*, 1.—1st, W. M. Osborne.

S. C. White Leghorns.

Cocks, 1.—1st, E. Gromoll. *Hens*, 3.—1st, F. Wales; 2nd and 3rd, E. Gromoll.
Cockerels, 7.—1st, F. Wales; 2nd, E. Gromoll; 3rd and 4th, Jas. McGurran.
Pullets, 8.—1st and 2nd, E. Gromoll; 3rd, W. H. Charlton; 4th, Jas. McGurran.

S. C. Brown Leghorns.

Cocks, 3.—1st, D. Cumming; 2nd and 3rd, W. J. Player.
Hens, 5.—1st, W. J. Player; 2nd and 3rd, T. Foisy; 4th, W. J. Player.
Cockerels, 2.—1st, W. J. Player; 2nd, T. Foisy.
Pullets, 5.—1st, T. Foisy; 2nd, 3rd and 4th, W. J. Player.

Black Leghorns.

Cocks, 1.—1st, W. M. Osborne.
Hens, 4.—1st, R. Oke; 2nd, A. & T. Readwin; 3rd, W. M. Osborne.
Cockerels, 4.—1st, 2nd and 3rd, W. M. Osborne; 4th, R. Oke.
Pullets, 5.—1st, A. & T. Readwin; 2nd and 3rd, W. M. Osborne; 4th, R. Oke.

Buff Leghorns.

Cocks, 1.—1st, J. O. Allan. *Hens*, 1.—1st, J. O. Allan.
Cockerels, 5.—1st, J. O. Allan; 2nd, T. Foisy; 3rd and 4th, L. F. Deslauries.
Pullets, 4.—1st, J. O. Allan; 2nd, 3rd and 4th, T. Foisy.

R. C. Brown Leghorns.

Cocks, 3.—1st, L. C. Sage; 2nd, Henderson & Billings; 3rd, G. & J. Bogue.
Hens, 3.—1st, Henderson & Billings; 2nd, G. & J. Bogue; 3rd, L. C. Sage.
Cockerels, 4.—1, Henderson & Billings; 2 & 4, W. Stewart & Son; 3, G. & J. Bogue.
Pullets, 3.—1st, G. & J. Bogue; 2nd, Henderson & Billings; 3rd, W. Stewart.

A. O. C. R. C. Leghorns.

Cocks, 3.—1st, W. Stewart & Son; 2nd and 3rd, R. Oke.
Hens, 3.—1st and 2nd, R. Oke; 3rd, W. Stewart & Son.
Cockerels, 2.—1st, R. Oke; 2nd, W. Stewart & Son.
Pullets, 3.—1st and 2nd, R. Oke; 3rd, W. Stewart & Son.

B. B. Red Game.

Cocks, 4.—1st, F. Wales. *Hens*, 4.—1st, F. Wales; 2nd and 3rd, Wm. Barber.
Cockerels, 4.—1st, 2nd and 3rd, Wm. Barber. *Pullets*, 4.—1st, 2nd and 3rd, Wm. Barber

Brown Red Game.

Cocks, 1.—1st, Tyson & McMaster.
Hens, 4.—1st, Tyson & McMaster; 2nd, Wm. Barber; 3rd, Tyson & McMaster.
Cockerels, 2.—1st, Tyson & McMaster; 2nd, Wm. Barber.
Pullets, 2.—1st and 2nd, Tyson & McMaster.

Duckwing Game.

Cocks, 4.—1st and 2nd, Wm. Barber; 3rd, Dr. J. H Basten.
Hens, 4.—1st, 2nd and 3rd, Wm. Barber.
Cockerels, 3.—1st, 2nd and 3rd, Wm. Barber. *Pullets*, 3.—1st, 2nd and 3rd, Wm. Barber.

Pyle Game.

Cocks, 5.—1, Tyson & McMaster; 2, F. Wales; 3, Wm. Barber; 4, J. H. Basten.
Hens, 6.—1st, Tyson & McMaster; 2nd, Wm. Barber; 3rd, Dr. J. H. Basten.
Cockerels, 4.—1st, Tyson & McMaster; 2nd and 3rd, Wm. Barber.
Pullets, 5.—1st, Tyson & McMaster; 2nd, Wm. Barber; 3rd, Tyson & McMaster.

C. Indian Game.

Cocks, 4.—1st, Dr. J. H. Bastien; 2nd, Jas. Pritchard; 3rd, D. Cumming.
Hens, 3.—1st, Dr. J. H. Bastien; 2nd, D. Cumming.
Cockerels, 4.—1st and 2nd, C. LaRose; 3rd, D. Cumming.
Pullets 4.—1st, D. Cumming; 2nd and 3rd, C. LaRose.

A. O. S. Variety Game.

Cocks, 4.—1st and 2nd, W. H. Reid; 3rd, G. & J. Bogue.
Hens, 4.—1st, W. H. Reid; 2nd, A. Thompson; 3rd, C. J. Daniels.
Cockerels, 3.—1st, G. & J. Bogue; 2nd, C. J. Daniels; 3rd, W. H. Reid.
Pullets, 4.—1st, C. J. Daniels; 2nd, G. & J. Bogue; 3rd, W. H. Reid.

Pit Game.

Cocks, 4.—1st and 3rd, E. H. Benjamin; 2nd, J. H. Warrington.
Hens, 3.—1st, 2nd and 3rd, E. H. Benjamin.
Cockerels, 3.—1st, 2nd and 3rd, E. H. Benjamin.
Pullets, 3.—1st, 2nd and 3rd, E. H. Benjamin.

Black Hamburg.

Cocks, 4.—1st, R. Oke; 2nd and 3rd, Wm. McNeil.
Hens, 6.—1st and 3rd, R. Oke; 2nd, Wm. McNeil; 4th, W. Stewart & Son.
Cockerels, 4.—1st R. Oke; 2nd, W. Stewart & Son; 3rd, Wm. McNeil.
Pullets, 5.—1st and 2nd, R. Oke; 3rd, W. H. Reid.

Pencilled Hamburg.

Cocks, 5.—1st and 3rd, Wm. McNeil; 2nd, R. Oke.
Hens, 4.—1st and 3rd, R. Oke; 2nd, Wm. McNeil.
Cockerels, 4.—1st and 3rd, Wm. McNeil; 2nd, R. Oke.
Pullets, 4.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, W. Stewart & Son.

Golden Spangled Hamburg.

Cocks, 4.—1st and 2nd, Wm. McNeil; 3rd, Dr. J. H. Bastien.
Hens, 5.—1st and 2nd, Wm. McNeil; 3rd, R. Oke.
Cockerels, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, W. Stewart & Son.
Pullets, 4.—1st and 3rd, R. Oke; 2nd, Wm. McNeil.

Silver Spangled Hamburg.

Cocks 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Dr. J. H. Bastien.
Hens 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, Dr. J. H. Bastien.
Cockerels, 4.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Dr. J. H. Bastien.
Pullets, 4.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Dr. J. H. Bastien.

W. C. B. Poland.

Cocks, 4.—1st and 4th, Wm. McNeil; 2nd, G. & J. Bogue; 3rd, Dr. J. H. Bastien.
Hens, 4.—1st, G. & J. Bogue; 2nd and 3rd, Wm. McNeil; 4th, Dr. J. H. Bastien.
Cockerels, 3.—1st and 2nd, Wm. McNeil; 3rd, W. McNeil.
Pullets, 3.—1st and 2nd, Wm. McNeil; 3rd, Dr. J. H. Bastien.

Golden Poland.

Cocks, 4.—1st and 3rd, Wm. McNeil; 2nd, Dr. J. H. Bastien.
Hens, 4.—1st and 3rd, Wm. McNeil; 2nd, Dr. J. H. Bastien.
Cockerels, 3.—1st, 2nd and 3rd, Wm. McNeil. *Pullets*, 3.—1st, 2nd and 3rd, Wm. McNeil.

Silver Poland.

Cocks, 3.—1st, W. B. Nantel; 2nd, Wm. McNeil.
Hens, 3.—1st and 2nd, Wm. McNeil; 3rd, W. B. Nantel.
Cockerels, 3.—1st and 2nd, Wm. McNeil; 3rd, W. B. Nantel.
Pullets 3.—1st and 2nd, Wm. McNeil; 3rd, W. B. Nantel.

A. O. S. V. Poland.

Cocks, 4.—1st and 3rd, Wm. McNeil; 2nd, G. & J. Bogue.
Hens, 4.—1st and 2nd, Wm. McNeil; 3rd, G. & J. Bogue.
Cockerels, 3.—1st and 3rd, Wm. McNeil; 2nd, G. & J. Bogue.
Pullets, 4.—1st and 3rd, Wm. McNeil; 2nd, G. & J. Bogue.

Houdan.

Cocks, 2.—1st and 2nd, G. & J. Bogue.
Hens, 3.—1st and 2nd, G. & J. Bogue; 3rd, Dr. J. H. Bastien.
Cockerels, 3.—1st and 3rd, G. & J. Bogue; 2nd, Dr. J. H. Bastien.
Pullets, 3.—1st and 2nd, G. & J. Bogue; 3rd, Dr. J. H. Bastien.

Red Caps.

Cocks, 3.—1st and 3rd, G. & J. Bogue; 2nd, W. H. Reid.
Hens, 7.—1st and 2nd, J. H. Warrington; 3rd, G. & J. Bogue; 4th, C. J. Daniels.
Cockerels, 3.—1st and 3rd, J. H. Warrington; 2nd, C. J. Daniels.
Pullets, 6.—1st and 2nd, J. H. Warrington; 3rd, G. & J. Bogue; 4th, C. J. Daniels.

A. O. S. V. Fowl.

Cocks, 5.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, G. & J. Bogue; 4th, Walter Hugh.
Hens, 6.—1st, Wm. McNeil; 2nd, G. & J. Bogue; 3rd, Walter Hugh; 4th, R. Oke.
Cockerels, 6.—1st, Walter Hugh; 2nd, G. & J. Bogue; 3rd, R. Oke; 4th, C. J. Daniels.
Pullets, 5.—1st, Wm. McNeil; 2nd, G. & J. Bogue; 3rd, Walter Hugh; 4th, R. Oke.

Black Red Bantam.

Cocks, 6.—1st and 4th, V. Barber; 2nd, Rook Bros.; 3rd, Wm. Barber.
Hens, 7.—1st and 3rd, V. Barber; 2nd and 4th, Tyson & McMaster.
Cockerels, 6.—1st, Tyson & McMaster; 2nd, V. Barber; 3rd and 4th, Wm. Barber.
Pullets 9.—1st, Rook Bros.; 2nd and 4th, Wm. Barber; 3rd, Tyson & McMaster.

Brown Red Bantam.

Cocks, 1.—1st, Geo. J. White.
Hens, 5.—1st, Geo. J. White; 2nd, Tyson & McMaster; 3rd and 4th, Wm. Barber.
Cockerels, 4.—1st, Tyson & McMaster; 2nd and 3rd, Wm. Barber; 4th, Geo. J. White.
Pullets, 5.—1st, Geo. J. White; 2nd, W. H. Reid; 3rd and 4th, Wm. Barber.

Duckwing Bantam.

Cocks, 3.—1st, Rook Bros.; 2nd and 3rd, Wm. Barber.
Hens, 3.—1st, Rook Bros.; 2nd and 3rd, Wm. Barber.
Cockerels, 4.—1st, Rook Bros.; 2nd and 3rd, Wm. Barber; 4th, W. H. Reid.
Pullets, 4.—1st, Rook Bros.; 2nd and 3rd, Wm. Barber.

Pyle Bantam.

Cocks, 6.—1st, 2nd and 3rd, Tyson & McMaster; 4th, Wm. Barber.
Hens, 8.—1st, 3rd and 4th, Tyson & McMaster; 2nd, Rook Bros.
Cockerels, 7.—1, Rook Bros.; 2, Tyson & McMaster; 3, W. H. Reid; 4 Wm Barber.
Pullets, 7.—1st and 3rd, Tyson & McMaster; 2nd, W. H. Reid; 4th, Wm. Barber.

Golden Sebright.

Cocks, 5.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, V. Fortier; 4th, T. Foisy.
Hens, 4.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, V. Fortier; 4th, T. Foisy.
Cockerels, 4.—1st and 2nd, V. Fortier; 3rd, C. LaRose; 4th, R. Oke.
Pullets 5.—1st and 3rd, V. Fortier; 2nd, C. LaRose; 4th, R. Oke.

Silver Sebright.

Cocks, 4.—1st and 2nd, R. Oke; 3rd, Wm. McNeil; 4th, Wm. Stewart & Son.
Hens, 4.—1st, R. Oke; 2nd and 4th, Wm. McNeil; 3rd, Wm. Stewart & Son.
Cockerels, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Wm. Stewart & Son.
Pullets 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Wm. Stewart & Son.

Black Rose Comb Bantam.

Cocks, 4.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, C. Pillar.
Hens, 5.—1st, R. Oke; 2nd, W. H. Reid; 3rd, Wm. McNeil; 4th, C. Pillar.
Cockerels, 4.—1st and 4th, Wm. McNeil; 3rd, W. J. Slessor; 2nd, R. Oke.
Pullets 5.—1st, W. H. Reid; 2nd, R. Oke; 3rd, Wm. McNeil; 4th, W. J. Slessor.

Buff Cochin Bantam.

Cocks, 4.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, W. Plant; 4th, A. C. Depres.
Hens, 6.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, W. Plant; 4th, A. C. Depres.
Cockerels, 10.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, W. Plant; 4th, A. C. Depres.
Pullets, 8.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, W. Plant; 4th, W. Plant.

Black or White Cochin Bantam.

Cocks, 5.—1st and 2nd, Wm. McNeil; 3rd, W. B. Nantel; 4th, W. H. Reid.
Hens, 7.—1st and 3rd, Wm. McNeil; 2nd, W. B. Nantel; 4th, W. J. Slessor.
Cockerels, 6.—1st and 2nd, Wm. McNeil; 3rd, W. J. Slessor; 4th, W. B. Nantel.
Pullets, 6.—1st and 4th, Wm. McNeil; 3rd, W. B. Nantel; 2nd, W. J. Slessor.

Japanese Bantam.

Cocks, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Geo. A. McInnes.
Hens, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, Geo. A. McInnes.
Cockerels, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, Geo. A. McInnes.
Pullets, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, Geo. A. McInnes.

A. O. S. V. Bantam.

Cocks, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, A. W. Bell.
Hens, 4.—1st, A. W. Bell; 2nd, Wm. McNeil; 3rd, R. Oke.
Cockerels, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Pullets, 4.—1st, R. Oke; 2nd, Wm. McNeil; 3rd and 4th, A. W. Bell.

Bronze Turkey.

Cocks, 1.—1st, D. Cumming.
Hens, 2.—1st, W. B. Nantel; 2nd, D. Cumming.
Cockerels, 5.—1st and 2nd, A. Thompson; 3rd, D. Cumming; 4th, W. B. Nantel.
Pullets, 3.—1st, D. Cumming; 2nd, A. Thompson.

White Turkey.

Cocks, 2.—1st, A. Thompson.
Cockerels, 2.—1st, D. Cumming.
Hens, 1.—1st, A. Thompson.
Pullets, 2.—1st, A. Thompson; 2nd, D. Cumming.

A. O. V. TURKEY.

Cocks, 1.—1st, F. Wales.
Hens, 2.—1st, A. Thompson; 2nd, F. Wales.
Cockerels, 3.—1st and 2nd, A. Thompson; 3rd, F. Wales.
Pullets, 3.—1st and 2nd, A. Thompson; 3rd, F. Wales.

TOULOUSE GEESE.

Males, 3.—1st and 2nd, A. Thompson; 3rd, J. A. Richardson.
Females, 3.—1st and 3rd, A. Thompson; 2nd. J. A. Richardson.
1903 Males, 2.—1st, D. Cumming; 2nd, A. Thompson.
1903 Females, 2.—1st, D. Cumming; 2nd, A. Thompson.

EMBDEN GEESE.

Males, 3.—1st, D. Cumming; 2nd, J. A. Richardson; 3rd, A. Thompson.
Females, 3.—1st, A. Thompson; 2nd, D. Cumming; 3rd, J. A. Richardson.
1903 Males, 4.—1st and 3rd, A. Thompson; 2nd, J. A. Richardson.
1903 Females, 4.—1st and 2nd, A. Thompson; 3rd, J. A. Richardson; 4th, D. Cumming.

CHINA GEESE.

Males, 2.—1st, F. Wales; 2nd, A. Thompson.
Females, 3.—1st, A. Thompson; 2nd, F. Wales; 3rd, D. Cumming.
1903 Males, 2.—1st, A. Thompson; 2nd, F. Wales.
1903 Females.—1st, F. Wales; 2nd, D. Cumming; 3rd, A. Thompson.

A. O. V. GEESE.

Males, 2.—1st, A. Thompson.
Females 2.—1st. A. Thompson.
1903 Males, 3.—1st and 2nd, A. Thompson.
1903 Females, 3.—1st and 2nd, A. Thompson.

DUCKS.

ROUEN.

Drakes, 2.—1st, W. Stewart & Son; 2nd, A. Thompson.
Ducks, 2.—1st, A. Thompson; 2nd, W. Stewart & Son.
1903 Drakes, 4.—1, D. Cumming; 2, W. H. Reid; 3, W. Stewart & Son; 4, A. Thompson
1903 Ducks, 4.—1st, W. H. Reid; 2nd, A. Thompson; 3rd, D. Cumming.

PEKIN.

Drakes, 3.—1st, W. Stewart & Son; 2nd, A. Thompson; 3rd, W. H. Reid.
Ducks, 2.—1st, A. Thompson; 2nd, W. Stewart & Son.
1903 Drakes, 3.—1st, D. Cumming; 2nd, A. Thompson; 3rd. W. H. Reid.
1903 Ducks, 4.—1, A. Thompson; 2, D. Cumming; 3, W. Stewart & Son; 4, W. H. Reid.

AYLESBURY.

Drakes 3.—1st, A. Thompson; 2nd, W. Stewart & Son; 3rd, W. H. Reid.
Ducks, 3.—1st, A. Thompson; 2nd, W. H. Reid.
Drakes, 3.—1st, A. Thompson; 2nd, W. H. Reid; 3rd, W. Stewart & Son.
1903 Ducks, 3.—1st, A. Thompson; 2nd, W. H. Reid.

CAYUGA.

Drakes, 4.—1st, A. Thompson; 2nd, G. & J. Bogue; 3rd, D. Cumming; 4th, W. H. Reid.
Ducks, 5.—1st, G. & J. Bogue; 2nd, A. Thompson; 3rd, D. Cumming; 4th, W. H. Reid.
1903 Drakes, 5.—1st, A. Thompson; 2nd, W. Stewart & Son; 3rd, A. & T. Readwin; 4th, G. & J. Bogue.
1903 Ducks, 6.—1st, A. & T. Readwin; 2nd, G. & J. Bogue; 3rd, A. Thompson; 4th, W. Stewart & Son.

A. O. V. DUCK.

Drakes, 2.—1st, F. Wales.
Ducks, 2.—1st, F. Wales.
1903 Drakes, 2.—1st, F. Wales; 2nd, A. Thompson.
1903 Ducks, 2.—1st, A. Thompson; 2nd, F. Wales.

SELLING CLASSES.

DORKING.

Males, 5.—1st and 2nd, J. H. Warrington; 3rd, F. Wales.
Females, 6.—1st, J. H. Warrington; 2nd, G. & J. Bogue; 3rd, F. Wales.

PLYMOUTH ROCK.

Females, 11.—1st, W. Stewart & Son; 2nd. C. Pillar; 3rd, D. Cumming.
Males, 11.—1st and 2nd, A. Thompson; 3rd, James Pritchard.

WYANDOTTE.

Males, 13.—1st. C. LaRose; 2nd, Rev. S. T. Bartlett; 3rd, G. & J. Bogue.
Females, 10.—1st. G. & J. Bogue; 2nd, Rev. S. T Bartlett; 3rd, C. LaRose.

ORPINGTON.

Males, 7.—1st; A. W. E. Hellyer; 2nd, F. Wales; 3rd, S. Short.
Females, 6.—1st, S. Short; 2nd, A. W. E. Hellyer; 3rd, S. W. D. Frith.

MINORCA.

Males, 8.—1st and 2nd, Wm. Wallace; 3rd, Geo. A. McInnes.
Females, 6.—1st, D. Cumming; 2nd, A. Delcorde; 3rd, Geo. A. McInnes.

LEGHORN.

Males, 9.—1st, W. H. Charleton; 2nd, W. Stewart & Son, Menie; 3rd, F. Wales.
Females, 6.—1st, F. Wales; 2nd and 3rd, J. McGurran.

PIGEONS.

WHITE POUTER.

Cocks, 3.—1st, C. Currier; 2nd, J. H. Magill; 3rd, V. Barber.
Hens, 3.—1st, C. Currier; 2nd, V. Barber; 3rd, J. H. Magill.

BLACK OR BLUE POUTER.

Cocks, 5.—1st, C. F. Wagner; 2nd, J. H. Magill; 3rd, Chas. Currier.
Hens, 4.—1st, J. H. Magill; 2nd and 3rd, Chas. Currier.

A. O. C. POUTER.

Cocks, 4.—1st and 2nd, C. H. Currier; 3rd, J. H. Magill.
Hens 3.—1st and 2nd, C. H. Currier; 3rd, J. H. Magill.

CARRIER.

Cocks, 2.—1st, W. H. Reid; 2nd, Ottawa Pigeon Lofts.
Hens 2.—1st, Robert Strang; 2nd, W. H. Reid.

BARB.

Cocks, 1.—1st, C. H. Currier. *Hens* 1 —1st, C. H. Currier.

RED OR YELLOW JACOBIN.

Cocks 4.—1st, A. & T. Readwin; 2nd and 3rd, R. K. Barker.
Hens, 4.—1st and 3rd, R. K. Barker; 2nd, C. H. Currier.

WHITE JACOBIN.

Cocks, 2.—1st, R. K. Barker; 2nd, A. & T. Readwin.
Hens, 2.—1st, R. K. Barker; 2nd, A. & T. Readwin.

A O. C. JACOBIN.

Cocks, 3.—1st, C. H. Currier; 2nd, R. K. Barker; 3rd, A. & T. Readwin.
Hens, 5.—1st and 2nd, R. K. Barker; 3rd, C. H. Currier.

WHITE FANTAIL.

Cocks, 3.—1st, Burrmount Pigeon Lofts; 2nd and 3rd, R. K. Barker.
Hens, 2.—1st and 2nd, R. K. Barker.

A. O. C. FANTAIL.

Hens, 3.—1st and 3rd, R. K. Barker; 2nd, W. Plant. *Cocks*, 2.—1st, R. K. Barker

TRUMPETER.

Cocks, 2.—1st, Burrmount Pigeon Lofts; 2nd, C. H. Currier.
Hens, 2.—1st, Burrmount Pigeon Lofts; 2nd, A. & T. Readwin.

TUMBLER, S. F.

Cocks, 3.—1st, W. H. Reid; 2nd and 3rd, C. H. Currier.
Hens, 3.—1st, W. H. Reid; 2nd and 3rd, C. H. Currier.

TUMBLER, L. F., C. L.

Cocks, 8.—1st and 2nd, V. Barber; 3rd, Burrmount Pigeon Lofts.
Hens, 8.—1st, 2nd and 3rd, V. Barber.

BOOTED TUMBLER.

Cocks, 4.—1st and 2nd, V. Barber; 3rd, Robt. Strang.
Hens, 4.—1st and 2nd, V. Barber; 3rd, Robt. Strang.

ANTWERP.

Cocks, 4.—1st and 2nd, C. H. Currier; 3rd, W. H. Reid.
Hens, 4.—1st, W. H. Reid; 2nd and 3rd, C. H. Currier.

RED OR YELLOW TURBIT.

Cocks, 1.—2nd, R. Strang. *Hens*, 1.—1st, C. Currier.

BLUE OR BLACK TURBIT.

Cocks, 3.—1st and 2nd, Burrmount Pigeon Lofts; 3rd, C. H. Currier.
Hens, 2.—1st, Burrmount Pigeon Lofts; 2nd, Robt. Strang.

A. O. C. TURBIT.

Cocks, 1.—C. H. Currier. *Hens*, 1.—C. H. Currier.

ENGLISH OWL, CHEQUERED.

Cocks, 2.—1st and 2nd, C. H. Currier. *Hens*, 2.—1st and 2nd, C. H. Currier.

A. O. C. ENGLISH OWL.

Cocks 4.—1st, 2nd and 3rd, C. H. Currier. *Hens* 2.—1st and 2nd, C. H. Currier.

AFRICAN OWL.

Cocks, 4.—1st, 2nd and 3rd, F. A. Woodward.
Hens 3.—1st, 2nd and 3rd, F. A. Woodward.

SWALLOW, RED OR YELLOW.

Cocks, 2.—1st and 2nd, Ottawa Pigeon Lofts.
Hens, 2.—1st and 2nd, Ottawa Pigeon Lofts.

A. O. C. SWALLOW.

Cocks, 4.—1st and 2nd, Ottawa Pigeon Lofts; 3rd, V. Barber.
Hens.—1st and 3rd, Ottawa Pigeon Lofts; 2nd, V. Barber.

ARCHANGEL.

Cocks, 3.—1st and 3rd, W. H. Reid; 2nd, Burrmount Pigeon Lofts.
Hens, 3.—1st, Ottawa Pigeon Lofts; 2nd and 3rd, W. H. Reid.

BLACK MAGPIE.

Cocks, 5.—1st and 2nd, Ottawa Magpie Lofts; 3rd, W. H. Reid.
Hens 4.—1st and 2nd, Ottawa Magpie Lofts; 3rd, W. H. Reid.

RED MAGPIE.

Cocks, 5.—1st, Burrmount Pigeon Lofts; 2nd and 3rd, Ottawa Magpie Lofts.
Hens, 6.—1st and 3rd, Ottawa Magpie Lofts; 2nd, Burrmount Pigeon Lofts.

A. O. C. MAGPIE.

Cocks, 3.—1st and 3rd, Ottawa Magpie Lofts; 2nd, Burrmount Pigeon Lofts.
Hens, 3.—1st, Burrmount Pigeon Lofts; 2nd and 3rd, Ottawa Magpie Lofts.

NUN.

Cocks 2.—W. H. Reid. *Hens*, 2.—1st, C. H. Currier; 2nd, W. H. Reid.

SILVER DRAGOON.

Hens, 1.—W. H. Reid.

A. O. C. DRAGOON.

Cocks, 3.—1st, W. H. Reid; 2nd, C. H. Currier; 3rd, Robt. Strang.
Hens, 3.—1st, W. H. Reid; 2nd, C. H. Currier; 3rd, Robt. Strang.

SHOW HOMER, CHEQUERED.

Cocks, 2.—1st, C. H. Currier; 2nd, Burrmount Pigeon Lofts.
Hens, 2.—1st, C. H. Currier; 2nd, Burrmount Pigeon Lofts.

FLYING HOMER.

Cocks 8.—1st, W. H. Reid; 2nd, C. H. Currier; 3rd, T. Foisy.
Hens, 7.—1st, W. H. Reid; 2nd, C. H. Currier; 3rd, T Foisy.

A. O. VARIETY.

Cocks, 5.—1st and 2nd, C. H. Currier; 3rd, V. Barber.
Hens, 3.—1st, C. H. Currier; 2nd, V. Barber; 3rd, Robert Strang.

PAIR PEA FOWL.

Two entries.—1st and 2nd, Jno. A. Richardson.

BELGIAN HARES, OVER 6 MOS.

Bucks 2.—1st and 2nd, A. Delcorde.
Does 5.—1st and 2nd, A. Delcorde; 3rd, A. Depres.

BELGIAN HARES, UNDER 6 MOS.

Bucks, 2.—1st and 2nd, A. Delcorde.
Does, 6.—1st and 3rd, A. Delcorde; 2nd, A. C. Depres.

SPECIALS.

WHITE ROCKS.

Best cock, hen, cockerel and pullet.—Hazelbrae Poultry Yards.
Second best cock, hen, cockerel and pullet.—F. A. Andrews.
Best two cocks and two hens.—Hazelbrae Poultry Yards.
Best collection.—Hazelbrae Poultry Yards.

PIGEONS.

Pouter.—C. F. Wagner.
Jacobin.—R. K. Barker.
Collection of Fantails or Pouters.—C. H. Currier.
Black Fantail Hen.—W. Plante.
Collection of Long Faced, Clean Legged Tumblers.—V. Barber.
Muffed Tumblers.—V. Barber.
Black Magpie Hen.—Ottawa Magpie Lofts.
Turbit.—Burrmount Poultry Yards.
English Owl.—C. H. Currier.
Collection of Swallows.—Ottawa Pigeon Lofts.
Collection of African Owls.—F. A. Woodward.
Swallow Cock, any color.—Ottawa Pigeon Lofts.
Archangel, Male or Female.—Ottawa Pigeon Lofts.
Archangel, Female.—Ottawa Pigeon Lofts.
Collection of Magpies.—Ottawa Magpie Lofts.
Magpie, any color.—Ottawa Magpie Lofts.
Chequered Flying Homer.—A. Delcorde.
A. O. C. Flying Homer.—T. Foisy.
Collection of Flying Homers.—A. Delcorde.
Pair of Homers for Squab Raising Purposes.—A. Delcorde.
Pigeon in Show, any variety.—C. H. Currier.
V. H. C. (3rd-prize) Pigeon in Show.—R. K. Barker.
Ugliest and Worst Specimen of a Pigeon in the Show.—Ottawa Pigeon Lofts.
Best Bird in the Show.—R. E. McKinstrey.
Belgian Hare, Female.—A. Delcorde.
Pair of Guinea Pigs.—S. Mathison.
Belgian Hare, Male.—A. Delcorde.

FINANCIAL STATEMENT OF EASTERN ONTARIO LIVE STOCK SHOW.

RECEIPTS.

Ontario Legislative grant		$3,000 00	
Mr Charleston, advertising		5 00	
Lumber and wood sold		.56 50	
Entry fees		101 50	
Sale of carcasses		28 35	
Mr. P. Clark, part payment damage suit		15 00	
Gate receipts		444 00	
Grants :			
Ottawa City	$1,200 00		
Dundas and Stormont	120 00		
Leeds and Grenville	80 00		
Carleton	100 00		
Hon. W. C. Edwards	100 00		
Renfrew Co.	50 00	1,650 00	
			$5,300 35

Expenditures.

Expenses of executive		$221 37	
Postage and stationery		28 37	
Printing and advertising		339 55	
Judges and lecturers		200 45	
General wages for show		166 15	
Fitting building :			
Lighting	$125 00		
Rent	190 00		
Carpenter work, lumber and decorating	1,033 93		
Seating	24 25	1,373 18	
Telegraph, telephone, express, etc		14 93	
Typewriting, and office expenses		85 00	
Sale of carcasses		28 35	
Settlement of damage suit		75 00	
Prizes paid		1,097 50	
Feed and straw		22 03	
Reporting meetings		50 00	
Cash on hand to balance		1,598 47	
			$5,300 35

Examined and found correct,

J. M. Duff, *Auditor.*

A. P. Westervelt, *Secretary.*

J. C. Smith, *President.*

REPORT

OF THE

REGISTRAR OF LIVE STOCK

OF THE

PROVINCE OF ONTARIO

1903.

DOMINION SHORTHORN BREEDERS' ASSOCIATION.
CANADIAN AYRSHIRE BREEDERS' ASSOCIATION.
CANADIAN HEREFORD BREEDERS' ASSOCIATION.
CANADIAN HACKNEY HORSE SOCIETY.
CLYDESDALE HORSE BREEDERS' ASSOCIATION.
SHIRE HORSE BREEDERS' ASSOCIATION.
HARNESS, HUNTER AND SADDLE HORSE SOCIETY.
CANADIAN PONY SOCIETY.
CANADIAN HORSE BREEDERS' ASSOCIATION.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO.)

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO.

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Printer to the King's Most Excellent Majesty.
1904.

TORONTO:

WARWICK BROS. & RUTTER, LIMITED, PRINTERS.

Dominion Shorthorn Breeders' Association

DIRECTORS' MEETING.

The eighteenth annual meeting of the Directors of the Dominion Shorthorn Breeders' Association convened in the Walker House, Toronto, January 18th, 1904, President William Linton in the chair.

The Secretary read the minutes of the last annual Directors' meeting, and on motion they were adopted.

The Secretary-Treasurer then read his eighteenth annual report, which on motion was adopted.

A letter was read from Mr. Chas. F. Complin, the Auditor, stating there had been a great increase in the work of auditing the accounts, and asked that he receive one cent per pedigree—this amount to include transfers and checking memberships—instead of the stated sum of $75. A resolution favoring Mr. Complin's suggestion was drawn up to be presented to the annual meeting.

A letter was read from Mr. John A. Turner, Calgary, Alta., saying that Mr. C. W. Peterson was forwarding a communication asking for a larger grant this year for the Calgary Exhibition, and he trusted they would comply with his request. The usual donation of $100 was made.

A letter was read from Mr. Geo. H. Greig, Secretary of Live Stock Associations, Winnipeg, Man., stating they were going to hold a Dominion Fair in Winnipeg this year, and asked that they receive a grant towards the Shorthorn Prize List.

Considerable discussion took place as to whether the amount donated to this exhibition should be $1,000 or $1,200, and finally a resolution was passed granting $1,200.

Mr. Robert Miller : At a meeting of the Executive it was moved by myself, seconded by Mr. Flatt, that, subject to the endorsation of the Directors, Mr. H. Gerald Wade be appointed Assistant Secretary of this Association. (Carried.)

Mr. Flatt : There is a matter that has taken considerable of our attention during the past year or two. During the past year all registrations have gone out in one volume instead of two volumes, and I think every member of this Board and every member of the Association will feel it is of importance to have all pedigrees printed in one book, rather than to have one book for bulls and one book for cows. We find this year the volume is a very bulky one, and we think that in future we might trace all pedigrees to a volume that was already printed. We propose to shorten the pedigrees as they will be printed in the next volume, by tracing as many into the last volume, that is, Volume 19, as we possibly can. We propose to print the pedigrees as far as necessary to trace them to Volume 19, but where there is not a pedigree of that particular family of pedigree in that particular volume, then we propose to print the pedigree in the coming volume, and that will reduce the volume one-third. The cost of printing the volume last year was $3,670 ; that is a very large item, and if we can save perhaps one-third of that it will be money well saved. That is our proposition, to print all

pedigrees to trace into Volume 19. so no person to take the pedigree need take any more than two volumes.

Mr. Smith: I think the suggestion made from the Executive is a very good one. It will probably save a lot of money to our Association.

Now, supposing I get a man to become a member of our Association who has in his herd book two or three head of cows whose pedigrees are recorded probably in 17, 16, or 15. As I understand the present regulation the Herd Book he will get will be the volume in which his cows are recorded. If that should be 16, 17, or 18, then he is not able to trace the progeny of any of the pedigrees he records until he procures that Volume 19.

Mr. Miller: The change we propose does not make any difference.

Mr. Johnston: I favor the proposition:

Mr. Simmons: I also favor the change.

Mr. Wade: It will simply mean to drop the pedigree after the first dam and her sire are printed, or tracing to some ancestor.

A resolution was drafted to be submitted to the annual meeting, and which appears in the minutes of that meeting.

The next matter dealt with by the Board was that of granting $1,500 to the Industrial Exhibition Association, and the prize list in the Shorthorn Department, as framed by the Executive Committee.

Mr. Harry Smith moved, seconded by Mr. James M. Gardhouse, that the action of the Executive be ratified in granting this amount to the Industrial. Carried.

The Secretary then read the prize list, and a short discussion followed.

Mr. Russell contended it was an injustice to the breeders of Canada to bring this prize list in, with such sweeping changes, without more notice, and said it was a very good thing for the importers.

Mr. Flatt said he was sorry he could not agree with Mr. Russell, but this prize list was framed with a view to giving the breeders everything possible, and a breeder could compete in every one of the class prizes.

Mr. Simmons did not see why his friend Russell should complain, as the prize list was a splendid one.

A few typographical errors had been made in sections 24, 25, and 26, and Mr. Harry Smith moved, seconded by Mr. Jas. M. Gardhouse, "That the Shorthorn Prize List of the Industrial Exhibition Association, as drawn up by the Executive, be adopted with the following changes:

Sec. 24. Steer sired by Shorthorn bull, calved before Sept. 1st, 1902, and under three years.

Sec. 25. Steer sired by Shorthorn bull, calved on or after Sept. 1st, 1902, and under two years.

Sec. 26. Steer calf, sired by Shorthorn bull, calved on or after Sept. 1st, 1903.

These changes met with the approval of the Directors, and the Prize List was unanimously adopted.

ANNUAL MEETING.

The eighteenth annual meeting of the Dominion Shorthorn Breeders' Association was held in Richmond Hall, Toronto, on January 19th, 1904, at 11 a.m. The President, Mr. Wm. Linton, occupied the chair.

On motion the minutes of last meeting were taken as read.

OFFICERS FOR 1904.

PRESIDENT: William Linton, Aurora, Ont.

FIRST VICE-PRESIDENT: W. G. Pettit, Freeman, Ont.
SECOND VICE-PRESIDENT: A. W. Smith, Maple Lodge, Ont.

EX-PRESIDENTS—LIFE MEMBERS:

Hon. John Dryden, Brooklin, Ont.
A. Johnston, Greenwood, Ont.
Richard Gibson, Delaware, Ont.
James Russell, Richmond Hill, Ont.
Robert Miller, Stouffville, Ont.

HONORARY LIFE MEMBER: John Miller, Brougham, Ont.

VICE-PRESIDENTS FROM PROVINCES:

W. D. Flatt, Hamilton, Ont.
F. G. Bovyer, Georgetown, P.E.I.
W. H. Ladner, Ladner's Landing, B.C.
Wm. H. Gibson, Pointe Claire, Que.
Bliss Fawcett, Sackville, N.B.
Chas. W. Peterson, Calgary, Alta.
C. A. Archibald, Truro, N.S.
W. A. Heubach, Touchwood Hills, Assa.
James Bray, Longburn, Man.

BOARD OF DIRECTORS:

A List:

F. W. Brown, Portage la Prairie, Man.
James M. Gardhouse, Highfield, Ont.
J. G. Barron, Carberry, Man.
T. E. Robson, Ilderton, Ont.
Thomas Russell, Exeter, Ont.

B List.

W. J. Biggins, Clinton, Ont.
E. C. Attrill, Goderich, Ont.
James Tolton, Walkerton, Ont.
H. Smith, Hay, Ont.
John Davidson, Ashburn, Ont.

C List:

W. D. Cargill, Ont.
S. Dyment, Barrie, Ont.
John Isaac, Markham, Ont.
George Raikes, Barrie, Ont.
C. M. Simmons, Ivan, Ont.

FINANCE COMMITTEE: Wm. Linton, Aurora, Ont.; W. G. Pettit, Freeman, Ont.; W. D. Flatt, Hamilton, Ont.; Arthur Johnston, Greenwood, Ont.; Robert Miller, Stouffville, Ont.

DELEGATES TO DOMINION CATTLE BREEDERS' ASSOCIATION: John Isaac, Markham, Ont.; T. E. Robson, Ilderton, Ont.

DELEGATES TO INDUSTRIAL EXHIBITION: William Linton, Aurora, Ont.; Robert Miller, Stouffville, Ont.

DELEGATES TO WESTERN FAIR: Henry Smith, Hay, Ont.; C. M. Simmons, Ivan, Ont.

DELEGATES TO CENTRAL FAIR, OTTAWA: R. R. Sangster, Lancaster Ont.; D. McLaren, Dunmore, Ont.

DELEGATES TO PROVINCIAL EXHIBITION, HALIFAX, N.S.: F. L. Fuller: Truro, N.S.; F. C. Dickie, Fort William, N.S.

DELEGATES TO PROVINCIAL EXHIBITION, NEW BRUNSWICK: Senator Josiah Wood, Sackville, N.B.; Bliss Fawcett, Sackville, N.B.

DELEGATES TO PROVINCIAL EXHIBITION, PRINCE EDWARD ISLAND: C. C. Gardner, Charlottetown, P.E.I.; F. G. Bovyer, Georgetown, P.E.I.

DELEGATES TO WINNIPEG INDUSTRIAL EXHIBITION: Hon. Thomas Greenway, Crystal City; Man.; J. G. Washington, Ninga, Man.

DELEGATES TO CALGARY EXHIBITION: Hon. E. Osborne Reid, Cochrane, Alta.; Wm. Beresford, Calgary, Alta.

DELEGATES TO BRANDON, MAN., EXHIBITION: J. E. Smith, Brandon, Man.; Wm. Chalmers, Hayfield, Man.

DELEGATES TO NEW WESTMINSTER EXHIBITION: T. W. Patterson, Ladner, B.C.; W. H. Ladner, Ladner, B.C.

DELEGATE TO VICTORIA EXHIBITION: F. C. Pemberton, Victoria, B.C.

DELEGATES TO SHERBROOKE, QUE., EXHIBITION: H. J. Elliott, Danville, Que.; H. W. Burton, Huntingville: Que.

DELEGATES TO MARITIME WINTER FAIR, AMHERST, N.S.: J. Rupert Coates, Nappan, N.S.; C. A. Archibald, Truro, N.S.

SECRETARY AND EDITOR: Henry Wade, Parliament Buildings, Toronto.

PRESIDENT'S ADDRESS.

By William Linton, Aurora, Ont.

Gentlemen: And when I say gentlemen I mean it in every sense of the word, for no one can breed Shorthorns for any length of time and make it a success unless he is a thoughtful, intelligent, reading man. Then, I say, what does it mean to be a breeder of Shorthorns? It means conveniences in and around the farmer's home; it means refinement and accomplishments for the farmer's girls; it means renewed interest in the farm by the boys, who will stay on the old farm and have enjoyment and pleasure with their fine stock; it means lifting the mortgage off the farm; it means money in the bank, and a snug sum over to help the boy who went to the city to buy a little farm on which to regain his strength and live a life of happiness and independence after years spent in dancing attendance behind a counter or leaning over books in a hot stifling countig room, which robbed him of his health. It meas intellectual development, and a thoughtful, industrious, honorable man. It means all this, and more, for every branch of industry depends to a very great extent upon the fine stock breeder. We are often surprised that more men of wealth in our cities do not adopt Shorthorn breeding for a pastime, for life in the rural districts will always have an attractive side; the air is pure, and there is freedom about it which makes it more agreeable to the average individual than the crowded city; families grow up in Spartan simplicity, adapting themselves to their surroundings and enjoying life as nature intended.

There is a matter of great importance to the breeder that perhaps it would be well for me to mention here, and that is the trade with the Argentine Republic. I think this trade could be developed if we go about it properly, and in earnest, and I have no doubt the Dominion Government will do what they can to help us, and I should very much like to hear what some of our friends have to say on the subject.

I also think there can be a greatdeal done in our own country in developing trade amongst our own people. If you recollect last spring we went to Ottawa and asked the Government for a grant to go to St. Louis, and after we found the restrictions that were placed upon us we did not want to go. Now, it would not be well to ask the Government to still grant us that money, and even ten times that amount, so that we can send the best bulls and the best stallions into every part of this country, so that every man if he wishes can have good stock. I know half the people will hold up their hands in holy horror at the thought of such a thing, but they did not do so when the Canada Pacific Railway was first projected. I know it cost too much, but could we do without it to-day? If we could send ten thousand good Shorthorn bulls broadcast over this country, in ten years from now the people would say that it was the greatest piece of political economy that this or any other country ever saw. We contribute 3,200 per mile to every mile of railway that is built in this country. We build drydocks, and a hundred and one other things. Why not invest some of this money in good bulls and stallions? Are they not as essential for the country's development and benefit?

There is another matter I should like to draw your attention to, and that is the establishment of abattoirs in this country like they have in Chicago. I think we should put forth every effort in our power to have abattoirs established somewhere in this country where all the offal of the animals slaughtered can be utilized, and the beef sent abroad in a chilled state instead of on foot as at present. I should like to see some action taken by this Association immediately.

There is also another matter that I think perhaps we have neglected to some extent. At our Institute meetings as a rule the dairy breeds of cattle have received a great deal more attention than the Shorthorns. Now, this is a mistake, and is our own fault. We should have insisted upon it that the Shorthorns be well represented

by capable men at the Institute meetings throughout the country, and perhaps it is not too late yet.

I wish also to remind you that we have lost some good men from our ranks, such as Hon. M. H. Cochrane, H. Cargill, M.P., and Wm. B. Watt, and I hope you will pass resolutions of condolence and forward to their families.

REPORT OF THE SECRETARY AND EXECUTIVE COMMITTEE.

The Secretary-Treasurer's report, as given below, was then read and unanimously adopted:

The Executive Committee beg to present the Eighteenth Annual Report, as furnished by the Secretary, of the business done by this Association for the year ending 31st December, 1903.

Registrations have kept up well this year. Volume XIX. has been issued and contains the pedigrees of 4,797 bulls and 5,647 cows, or a total of 10,444, an increase of 1,277 over that of Volume XVIII., making the largest volume, so far as the number of pedigrees is concerned, yet issued, and making a total in the nineteen volumes now published of 45,234 bulls and 53,994 cows, or a grand total of 99,228 pedigrees. The pedigrees of the bulls are printed numerically in order they are received, and those of the females under the names of the owners, and both are abbreviated as fine as possible and referred to other Pedigrees in the same Volume, making a complete record in itself, as pedigrees scan be traced in full. This involves a great deal of clerical labor, as much matter has to be gone over.

The pedigrees of 84 imported bulls and 428 imported cows are recorded in Volume 19. The names of the gentlemen who have imported in 1903 are as follows: Edwin Battye, Gore Bay; H. Cargill & Son, Cargill; David Clow, Whitechurch; H. J. Davis, Woodstock; J. I. Davidson, Balsam; W. C. Edwards & Co., Rockland; W. D. Flatt, Hamilton; Alex. Isaac, Cobourg; Geo. Isaac, Bowmanton; Arthur Johnston, Greenwood; Jas. Lawrence, Clearwater, Man.; John Miller, Jr., Brougham; Sir William Mulock, Newmarket.

The following amounts were paid out by this Association for prizes at the different exhibitions in Canada in 1903: The Winnipeg Exhibition, $500; the Dominion Cattle Breeders' Association, $659, for prizes at the Guelph Winter Fair and the Ottawa Winter Fair for beef and dairy cattle; the sum of $150 was given to the Maritime Winter Fair, held at Amherst, N.S.; the Dominion Exhibition at Toronto, $1,500; Brandon, Man., $250; Calgary, Alta., $100; New Westminster, B.C., $100; Victoria, B.C., $100; Sherbrooke, Que., $100; Fredericton, N.B., $100; Halifax, N.S., $100; Charlottetown, P.E.I., $100; London, Ont., $250; Ottawa, $100. Total, $4,1009.

Since 1895 this Association has distributed prize money amounting to a total of $17,000, as follows: From Halifax and Amherst, N. S., on the East, through St. John, N. B., Charlottetown, P.E.I., Sherbrooke, Que., Toronto, Guelph, and London, Ont.; Winnipeg, and Brandon, Man.; Saskatoon, Sask., Calgary, Alta., to New Westminster and Victoria, B.C., on the West, making a complete chain from the Atlantic to the Pacific.

One hundred dollars was contributed to the Dominion Cattle Breeders' Association towards the wages of a man for the Government car, and three hundred to advertising in the North-West.

Shorthorn breeders in Manitoba and the Territories especially, should be particularly careful to have the pedigrees of animals purchased in the United States recorded in the Dominion Herd Book before they come into this country, as many of the pedigrees in the American Herd Book are not eligible for record in our book, as they do not trace in all their crosses to imported cows. Special attention is called to this matter, as a number of cattle have been brought across the line during the last two years, whose pedigrees had to be rejected for above reason.

The membership of the Association, divided into Provinces, is as follows: Ontario, 1,354; Manitoba, 323; Assiniboia, 79; Alberta, 79; Saskatchewan, 18; British Columbia, 16; New Brunswick, 5; Quebec, 26; Prince Edward Island, 9; Nova Scotia, 17; United States, 10.

The office work, owing to the large number of registrations and increased memberships, is constantly increasing, over 19,000 letters and communications have been mailed, 1,936 membership receipts, 2,053 Herd Books, 1,800 Annual Reports, and 1,800 Circulars re Dairy Test at St. Louis Exhibition. All the pedigrees received have to be checked, then posted. Fully half of the letters that are received with pedigrees have to be answered on account of insufficient information, the answers requiring careful consideration. We never pass a pedigree without examining that of the sire and dam, checking the age of the sire and examining the dates of birth of produce posted under the dam to detect errors in date of birth.

Many of the breeders write to know why females are not numbered the same as males, and often return certificates to have them numbered. The explanation is: Pedigrees of females are all printed alphabetically under their owners' names, which are also in the Herd Book. If breeders sent in their registrations at different times during the year the numbers of their cows would be all mixed up, and would cause great confusion; hence we cannot number them consecutively until the volume is completed.

All pedigrees shall be signed by the breeder, or in case of death by a proper representative. The breeder of an animal is the owner of the dame at the time of service.

We have received since the last meeting Vols. 54, 55 and 56 of the American Shorthorn Herd Book, and Vol. 49 of the English Shorthorn Herd Book as Exchanges.

In 1898 the annual fees were reduced to $2.00 per annum, which has resulted in a very large increase in membership, consequently circulating more of the Herd Books amongst the breeders. The penalty fees have also been reduced—to members, from $1.75 to $1.00, and for non-members, from $2.25 to $1.75. The time limit was changed, in 1897, to two years, instead of eighteen months.

A list of errors called an Errata, is made in each Volume, which should be marked in red ink in the Volume mentioned. We also hope breeders will furnish us with any catalogue of sales that might be made during the year.

Your Committee would call particular attention to the rule requiring all calves born to the recorded before they are twenty-four months old. A penalty fee will be charged after that age. Attention is also called to the clause of the Constitution which requires that "a member must pay up all his fees in arrears before he can resign"; and to another clause, "That when books or documents are mailed or expressed, properly prepaid, the duties of the Association are fulfilled, and should a Volume or Pedigree be lost in the mail, duplicate copies will have to be paid for."

In 1903 we were paid for 10,008 registrations and 3,735 changes of ownership and duplicate certificates; against, in 1902, 9,980 registrations and 3,883 changes of ownership; against, in 1901, 8,874 registrations and 3,019 changes of ownership; against, in 1900, 7,990 registrations and 3,397 changes of ownership; against, in 1899, 7,068 registrations and 2,006 changes of ownership and duplicate certificates; against, in 1898, 5,386 registrations, 5,555 certificates, and 1,064 changes of ownership; against, in 1897, 4,128 registrations, 4,246 certificates, and 620 changes of ownership; against, in 1896, 2,957 registrations, 3,017 certificates, and 379 changes of ownership; against, in 1895, 3,000 registrations, 3,100 certificates, and 450 chages of ownership; against, in 1894, 3,045 registrations, 3,142 certificates, and 493 transfers.

Following up the change in registrations, as a matter of course, there is a corresponding change in registration fees. In 1891 we received $3,152.50; in 1892, $3,835.25; in 1893, $3,787.45; in 1894, $3,357.75; in 1895, $3,220.00; in 1896, $2,954; in 1897, $4,124.25; in 1898, $5,233.00; in 1899, $6,834.75; in 1900, $7,953.00; in 1901, $8,560.00; in 1902, $9,479.31; and in 1903, $9,749.02, an increase of $251.71 over 1902.

Herd Books. There were sent out in 1903: Of Vol. I., 3 copies; of Vol. II., 6 copies; of Vol. III., 12 copies; of Vol. IV., 12 copies; of Vol. V., 20 copies; of Vol.

VI., 26 copies ; of Vol VII., 23 copies ; of Vol. VIII., 29 copies ; of Vol. IX., 5 copies ; of Vol. X., 19 copies ; of Vol. XI., 68 copies ; of Vol. XII., 151 copies ; of Vol. XIII., 115 copies; of Vol. XIV., 83 copies ; of Vol. XV., 87 copies ; of Vol. XVI., 314 copies ; of Vol. XVII., 346 copies ; of Vol. XVIII., 621 copies ; of Vol. XIX., 113 copies, a total of 2,053 copies, or 177 more than for 1902.

Pedigrees on Record. Vol. I. contains 3,304; Vol. II. contains, 4,427 ; Vol. III. contains 4,593 ; Vol. IV. contains 4,957 ; Vol. V. contains 4,388 ; Vol. VI. contains 5,904 ; Vol. VII. contains 4,954 ; Vol. VIII contains 4,024 ; Vol. IX. contains 3,633 ; Vol. X. contains 3,669 ; Vol. XI. contains 3,213 ; Vol. XII. contains 3,148 ; Vol. XIII. contains 2,714 ; Vol. XIV. contains 4,147 ; Vol. XV. contains 5,776 ; Vol. XVI. contains 7,024 ; Vol. XVII. contains 9,406 ; Vol. XVIII. contains 9,168 ; Vol. XIX. contains 10,444 ; Vol. XX. will contain about 10,000.

As shown by the above we are now reading the Twenty-first Volume, which will contain animals recorded in 1904.

NUMBER OF MEMBERS FOR TEN YEARS.

Year.	New Paid.	Resigned and Lapsed.	Not Paid.	Old Paid.	Total Paid.
1894	66	72	88	318	384
1895	60	..	..	290	350
1896	109	41	77	315	424
1897	106	36	50	431	537
1898	250	24	48	463	713
1899	399	31	83	657	1,056
1900	305	64	142	946	1,251
1901	310	82	129	1,255	1,565
1902	377	116	197	1,385	1,762
1903	345	165	264	1,591	1,936

This table shows that our paid-up membership roll has increased 174 in the last year in total numbers. Out income from members' fees for 1896 was $1,289 ; for 1897, $1,615 ; for 1898, $1,536 ; for 1899, $2,112 ; for 1900, $2,502 ; for 1901, $3,130 ; for 1902, $3,554, and for 1903, $3,872.

EXTRACTS FROM BY-LAWS.

Section 1.—Persons desirous of becoming members shall so notify the Secretary, pay the entrance fee, and agree, if elected, to conform to the rules of the Association, and not to withdraw without paying all fees due and giving three months' notice of their intention of doing so.

Section 2.—Members shall pay an entrance fee of $2.00, and subsequently an annual subscription of $2.00, which annual subscription shall be due and payable on the first of January in each year.

Section 5.—Members must keep the Secretary advised of their Post-office address, and all communications shall be considered as delivered which have been mailed, properly addressed and prepaid.

New By-law.—That all calves dropped after January 1, 1899, shall in future be registered within twenty-four months of birth, and if not so registered, enlarged fees shall be charged for their registration.

Section 15.—Fees.—Charges for registration will be :

To Members, Registration and Certificate..... $0 75 for each animal.
To Non-Members, Registration and Certificate ..... 1 25 for each animal.
Over age, to Members (in all cases a Certificate goes with Registration) ..... 1 00 for each animal.
Over age, to Non-Members (in all cases a Certificate goes with Registration) ..... 1 75 for each animal.
Change of Ownership, 25c ; duplicate Certificate, 25c.
Back volumes of herd Books, $2.00 each.

HENRY WADE, Secretary.

FINANCIAL STATEMENT.

Receipts.		
Cash on hand		$7,704 79
Fees from 1591 old members and from 345 new members, total 1,936		3,872 00
Registration Fees for 10,008 Pedigrees ..	$8,814 75	
Registration Fees for 3,737 Transfers	934 25	9,749 00
Interest on deposit		298 55
Herd Books sold (66)		132 00
		$21,756 34

Expenditure.	
Wages Government Car, $100; National Live Stock, 17.50.	$117 50
Fire Insurance	41 79
Printing and Stationery	428 14
Express on Books	447 25
Postage	622 31
Auditor and Stenographer ...	85 00
Miscellaneous, Telegraph, Cartage, etc	69 27
Back Volumes.	
Herd Books, Binding	1,383 25
Herd Books, Vol. XIX., Printing and Binding	3,670 95
Prizes at different Shows, $3,355 and Cattle Breeders' Grant for Prizes, ...$659	4,014 00
Advertising in North-West ..	300 00
Five shares of Stock, International Live Stock Association	500 00
Directors' and Committee Expenses	686 45
Commission	3,876 50
Cash	5,513 93
	$21,756 34

Assets.

To Cash	$5,513 93	4,145 Herd Books at $2.00.....	$8,290 00
Office Furniture, Books, etc, ..	150 00		
1,227 Herd Books at $1.50	1,840 50		$15,794 43

I hereby certify that I have examined the books and accounts of the Dominion Short-Horn Breeders' Association for the year ending December 31st, 1903, and that the above statement is in accordance with the same.

CHAS. F. COMPLIN,
Auditor.

Toronto, January 13th, 1904.

ADDRESS BY R. C. CLUTE, K.C.

Mr. Clute said it seemed a presumption on his part to say anything to gentlemen from whom he came to learn, and rather out of place for a lawyer to have anything to do with farming. He was bred and born on a farm, and could not get away from it, and supposed if he consulted his pocket he would stay out of Shorthorns unless he got somebody who knew more about it than himself. He said he had commenced in a very modest way ,and from suggestions from the gentlemen present he hoped to learn something about it.

Mr. Clute expressed the opinion that one thought might receive the consideration of the Executive—if it had not been threshed out before—and that was, a large interest in this country was manifestly the dairy interest. By the amount of exports it seemed that it, at all events, had taken a thorough hold upon the people, and was it not possible for some action to be taken by this Association, some method by which they could reach that large class of producers to introduce as part of their system at all events a high grade Shorthorn dairy cow.

From what he had read that had certainly been applied with success in certain parts of England. Some of the best Shorthorn herds there were dairy herds, and he supposed if the proper care and selection was given to Shorthorns in this country as good

a herd for either butter or milk could be established from any other breed. Then, if that were so, ought there not to be a large number of Shorthorn dairy herds, and could not that be promoted by an effort on the part of the Executive to bring this to the breeders' attention, and to take the same pains as they do in extending their interests to introduce that element into their breeds. He thought there might be this partial method, at all events, adopted, just as they have engaged men who go into the different parts of the country and instruct others in the most perfect parts of dairying. He asked if it would not be possible for this Association to have certain men selected whose interests it would be to go to meetings of the various associations throughout the different courties and townships and bring before the public results from carefully compiled statistics showing the suggestion made had a foundation in fact, and showing the dairymen that the breed the gentlemen here are endeavoring to promote would be in their interests to adopt. If the dairymen realized they could not get a better class of animal, not only for export, but for dairy purposes also, it would give the Shorthorn breeder a large class of customers he did not have at present.

In speaking in regard to the export meat trade, Mr. Clute said if the reports given are correct, then those who breed their cows for export are handicapped by their animals being mixed, thus making a large proportion of animals unfit for the beef product, and the result is animals from Canada do not rank as high as those from the United States simply because they are not as good breed. Now, if that breed could be promoted in the direction where a large number of animals are raised, then the result would be in a comparatively short time the whole export beef would reach a higher standard, would procure a higher price, and directly and indirectly the interests of the Shorthorn breeder would be promoted. He thought this should command the interest of the Executive or a Committee if they thought it worth while taking the matter up.

In concluding, Mr. Clute thanked the President for the honor of having the privilege of speaking to such a large gathering of Shorthorn breeders, and he was satisfied there was no one interest doing more good in the country than the Shorthorn Association.

RESOLUTIONS.

"That $100 be granted by this Association towards the wages of a man in charge of cars of live stock going to the west." Carried.

"That H. Gerald Wade be appointed Assistant Secretary of the Dominion Shorthorn Breeders' Association." Carried.

"That the action of the Executive Committee in granting the auditor one cent per pedigree for auditing the accounts of the Shorthorn Association be sustained." Carried.

"That in order to reduce the cost of printing, pedigrees in future volumes of the Shorthorn Record trace to Volume 19, and where there is not a pedigree of any particular family in that volume the pedigree be printed in full." Carried.

"That it be left in the hands of the Executive Committee to work out the details in connection with printing the volume, as suggested." Carried.

A heated discussion took place on the advisability of granting the Cattle Breeders' Association 50 cents per member for the Ontario members or a lump sum of $500.

Mr. Robert Miller contended that as they were giving liberal donations to all the shows this year, and it was reducing their funds greatly, it would not be in the interests of the Association to grant 50 cents per member, and, moreover, it was not giving just treatment to the members of this Association from other Provinces when they only made the Ontario members members of the Cattle Breeders' Association.

Mr. Johnston said the Cattle Breeders' Association had great weight with the railway authorities in procuring reduced railway rates for pure bred stock, and it was quite necessary for this Association to have a large membership, as it gave them far more power in presenting their claims ; therefore, he strongly advised the desirability of

making a grant of 50 cents per member, resident in Ontario, to the Cattle Breeders' Association.

Mr. A. W. Smith and Mr. F. W. Hodson strongly supported Mr. Johnston.

At the Directors' meeting an amendment, moved by W. G. Pettit, seconded by W. D. Flatt, granting the sum of $500 to the Cattle Breeders' Association was carried, but the following resolution presented to the annual meeting carried by a small majority :

Moved by Arthur Johnston, seconded by A W. Smith, "That this Association make members in Ontario members of the Dominion Cattle Breeders' Association at 50 cents per member, and the distribution of the funds be left in the hands of the Executive of the Dominion Shorthorn Breeders' Association." Carried.

It was the unanimous opinion of the meeting that a good exhibit of Shorthorns should be made at Toronto, and on motion it was resolved : "That the action of the Executive in granting $1,500 to the Industrial Exhibition Association be ratified." Carried.

"That the Dominion Shorthorn Association donate the sum of $1,200 to Winnipeg Industrial Exhibition." Carried.

On motion it was resolved : "That the following amounts be granted to the different exhibitions given below, providing the Association duplicate the amount for Shorthorns ; but in case they do not give as much as this Association has granted, the Dominion Shorthorn Breeders' Association duplicate their prize list in the Shorthorn department ; all animals exhibiting to be registered in the Dominion Shorthorn Herd Book :

Toronto Industrial	$1,500
London, Western Fair	250
Ottawa, Central Canada Fair	100
Sherbrooke, Que., Exhibition	100
Maritime Provinces Winter Fair, Amherst, N.S.	100
Halifax, Provincial Fair	100
Fredericton, Provincial Fair	100
Charlottetown, P.E.I., Provincial Fair	$100
Brandon Big Fair Association, Brandon, Man.	250
Calgary Industrial Exhibition	300
New Westminster, B.C., Exhibition	100
Victoria, B.C., Exhibition	100
Winnipeg, Dominion Exhibiton	1,200

The following resolution of condolence was unanimously passed :

"That we, the members of the Dominion Shorthorn Breeders' Association, in annual meeting assembled, desire to place on record our feeling that in the loss by death of Henry Cargill, Cargill ; Wm. B. Watt, Salem, and M. H. Cochrane, Hillhurst, Que., we have lost some of our most estimable members, and Canada has lost some of her foremost men and citizens.

"We wish to assure the members of each bereaved family that we join with them in their sorrow. We extend to them our heartfelt sympathy, and we hope that an all wise Providence will sustain them in their trials.

"That a copy of this resolution be sent to each of the families, and that it be printed in our minutes." Carried.

Arthur Johnston : I wish to introduce a subject brought up at a combined meeting of representatives from the various Live Stock Associations in Canada, held at the Rossin House, Toronto, November 11th, 8 p.m., 1903, and call attention of the Shorthorn Breeders' Association to certain resolutions passed there, and have some expression of opinion from the gentlemen present as to their opinion on the question. They referred almost, not quite entirely, to St. Louis Exhibition, and the question is whether we should make an effort to make an exhibit at that show or not.

Mr. F. W. Hodson, Dominion Live Stock Commissioner, was then called upon to address the meeting, and he outlined the result of his official visit to St. Louis, and also explained to the breeders the exact condition of the regulations existing between the United States and Canada, and produced letters from the United States Department of Agriculture substantiating same.

The following are the resolutions passed at the combined meeting of representatives from the different Associations, held in Toronto November 11th, 1903:

"That it is not advisable to make an exhibit of the beef breeds of cattle at St. Louis unless the present restrictions as applied to the importation of pure bred animals into the United States can be greatly modified.

"We think it would be much better to expend any moneys that can be afforded by our Government in making an exhibition at home that would equal or excel any exhibition of live stock on this continent." Carried.

"That the Dominion Live Stock Commissioner proceed to take such steps as he may think necessary and advisable for the formation of a National Live Stock Association in the Dominion of Canada. And when the Commissioner gets his work far enough advanced to call a preliminary meeting for organization we feel sure that he can depend on every man here, and every man in the live stock industry here, going to his assistance and rendering every help possible to make the Association a success." Carried unanimously.

Arthur Johnston: "I beg to move that this annual meeting of the Shorthorn Breeders' Association endorse and confirm the resolutions passed by representative live stock men at the Rossin House in November last. The resolutions have been read, and I move these resolutions be the sentiments of the meeting now assembled."

A. W. Smith: "I wish to second that motion that Mr. Johnston has made, and would add that we recommend the formation of a National Live Stock Association to be composed of delegates from each Province according to the number of members of all the Live Stock Associations in each Province." Carried unanimously.

A. P. Westervelt, Secretary of Live Stock Associations: Mr. Hodson has gone into the matter very fully, and I might just say my views are exactly what his are. I might just state that if I had any sort of stock that I wanted to show I would not be willing to show it at any exhibition Mr. Coburn has charge of. That just expresses my views with regard to the matter.

The meeting then adjourned.

Shorthorn Prizewinners.

SHORTHORN PRIZE-WINNERS AT DOMINION EXHIBITION, TORONTO, 1903.

Bull, 4 years old and upwards.

1st, Joy of Morning (imp.) =32070= dark roan; calved December 12, 1898; bred by Wm. Duthie, Collynie, Tawes, Scot.; exhibited by Geo. D. Fletcher, Brindham; got by Pride of Morning (64546); dam Jessica 2nd, by Scottish Archer (59893).

2nd, Marquis of Zenda (imp.) =26064= roan; calved Feb. 26, 1897; bred by W. S. Marr, Uppermill, Scot.; exhibited by W. C. Edwards & Co., Rockland; got by Wanderer (60138); dam Missie 123rd; by William of Orange (50694).

3rd, Spicy Robin—28259— roan; calved Feb. 16, 1898; bred by J. & W. B. Watt, Salem, Ont.; exhibited by Jas. A. Crerar, Shakespeare; got by Red Robin —24808—; dam Roan Lady —24755— by Brampton Hero —324—.

4th, Valasco 29th =39801= roan; calved February 16th, 1898; bred by R. & S. Nicholson, Sylvan, Ont.; exhibited by Jno. A. Atchison, Inverhaugh; got by Indian Brave =21500=; dam Vacun 34th =30536= by Norseman =16397=.

Bull, 3 years old and under 4.

1st, Spicy Marquis (imp.) =36118= roan; calved January 19, 1900; bred by W. S. Marr, Uppermill, Scot.; exhibited by W. D. Flatt, Hamilton; got by Spicy Robin (69638); dam Maude 37th by High Commissioner (59085).

2nd, Prince Gloster =40998= red; calved October 18, 1899; bred by S. C. James, New Sharm, Iowa; exhibited by John Dryden & Son, Brooklin; got by Victoria's Prince of Maine Valley =40997=; dam Duchess of Gloster 32nd =53752=; by Gowrie =40991=.

3rd, Fitz Stephen Forester (imp.) —36030— roan; calved November 10, 1899; bred by Executors of W. T. Talbot, Ardfort Abbey, Ireland; exhibited by J. & W. Russell, Richmond Hill; got by Stephen Fitz-Lavender (73732); dam Flower of Aylesby 29th by British Hope (60415).

4th, Scottish Hero (imp.) =36102= roan; calved January 18, 1900; bred by Alex. Campbell, Deystone, Kintore, Scot.; imported by W. G. Pettit & Son, Freeman; exhibited by Jas. A. Crerar, Shakespeare; got by Count Amaranth =32055= (74289); dam Daroide Empress =38257= by Kintore Hero (70723).

BULL, 2 YEARS OLD AND UNDER 3.

1st, Prince Sunbeam (imp.) —45216— (81964) roan ; calved May 5, 1901 ; bred by R. Bruce, Heatherwick, Scot.; imported in 1902 by Geo. Isaac, Bomanton ; exhibited by T. C. Robson, Ilderton ; sire Prince of Archers (71240); dam Sunbeam 4th by Seneca (63346).
2nd, Village Champion (imp.)—40433— red ; calved February 16, 1901 ; bred by Wm. Duthie, Collynie, Scot.; exhibited by W. C. Edwards & Co., Rockland ; got by Scottish Champion (75598); dam Village Maid 17th, by Master of the Ceremonies (56162).
3rd, Village Captain —39914— roan ; calved January 3, 1901 ; bred by H. Smith, Hay, Ont.; exhibited by W. G. Pettit & Sons, Freeman ; got by Knuckle Duster (imp.)—28868— (72793); dam Village Queen —37317—, by British Flag —18558—.
4th, Cicely's Pride (imp.) —40369— (78594) roan ; calved September 14, 1900 ; bred by His Majesty King Edward 7th, Sandringham, Eng.; exhibited by Hon. G. A. Drummond, Point Clairs, P.Q.; got by Pride of Collynie (75248); dam Cicely by Sittyton Stamp (64367).

BULL, CALVED BEFORE JAN. 1, 1902, AND UNDER 2 YEARS.

1st, Clipper Hero —44785— roan ; calved October 14, 1901 ; bred and exhibited by John Dryden & Son, Brooklin; got by Collynie Archer (imp.)—28860—; dam Carrie —23453—, by William Rufus (imp.) —6455— (56769).
2nd, Famous Pride (imp.) —Vol. 20— red ; calved December 20, 1901 ; bred by Geo. Campbell, Harthill, Aberdeenshire, Scot.; exhibited by Goodfellow Bros., Macville ; sire Golden Fame (76786) ; dam Fanny 2nd (Vol. 47).
3rd, Lancaster Comet —43264— red ; calved December 26, 1901 ; bred and exhibited by W. C. Edwards & Co., Rockland ; got by Marquis of Zenda (imp.) —26064—; dam Lady Lansdowne —29697— by Knight of St. John (imp.) —17102—.
4th, Invincible —43214— red, little white ; calved October 3, 1901 ; bred by McDonald Bros., Woodstock; exhibited by G. H. Oke, Alvinston ; got by Sir Tatton —28797—; dam Mina 2nd —46379—, by Gold Dust —23359—.

BULL CALVED ON OR AFTER JANUARY 1, 1902.

1st, Diamond —44695— roan ; calved August 18, 1902 ; bred by T. Scott, Sutton West ; exhibited by W. D. Flatt, Hamilton ; got by Marvel —24781— ; dam Lily Ramsden —40438—, by Speculator —8567—.
2nd, Choice Archer (imp.)—Vol. 20— dark roan ; calved February 8, 1902 ; bred by Jas. Durno, Westertoun, Aberdeenshire, Scot.; exhibited by Jas. I. Davidson, Balsam ; got by Archer (69880); dam Linda, by Sigmund (69583).
3rd, Jilt Victo (imp.) —45187— roan ; calved June 28, 1902 ; bred by J, Young, Tilbouries, Scot.; imported by G. Isaac, Bomanton ; exhibited by Haining Bros., Highgate ; got by Lord Methuen (79281); dam Scottish Queen by Scottish Prince (73593).
4th, Bessie's Marquis —43261— red ; calved April 19, 1902 ; bred and exhibited by W. C. Edwards & Co., Rockland ; sire Marquis of Zenda (imp.) —26091—; dam Roan Bessie 3rd (imp.) —38016—, by Clan Alpine (60405).

BULL, CALVED BEFORE JAN. 1, 1903, AND UNDER 1 YEAR.

1st, Royal Wanderer=48582= red roan ; calved September 27, 1902 ; bred and exhibited by T. E. Robson, Ilderton ; got by Wanderers' Last (imp.) =39129= (80212); dam Jealous Girl =38008= (imp.), by Bapton Conqueror (73981).
2nd, Remus =48537= red ; calved September 11, 1902 ; bred and exhibited by Goodfellow Bros., Macville ; got by Shining Light =38920=; dam Gipsy Maid =29819=, by Golden Crown (imp.) =17098= (64088).
3rd, Wander's Star =48585= roan ; calved September 20, 1902 ; bred and exhibited by T. E. Robson, Ilderton ; got by Wanderer's Last (imp.) =36129= (80213); dam Sittyton Lavender 9th (imp.) =38112=, by Silver Plate (75633).
4th, Breastplate =48514= roan ; calved November 11, 1902 ; bred and exhibited by J. & W. Russell, Richmond Hill ; got by Fitz-Stephen Forester (imp.) =36030=; dam Rosabel 3rd =28877=, by Lord Stanley =17849=.
5th, Sailor Bruce 2nd =48540= roan ; calved December 20, 1902 ; bred and exhibited by Wm. McDermott, Living Springs ; got by Captain Bruce =32001=; dam May Flower 3rd =40878=, by Royal Sailor (imp.) =18959=.

BULL, CALVED ON OR AFTER JAN. 1, 1903.

1st, Clipper Champion =48274= roan ; calved January 4, 1903 ; bred and exhibited by W. C Edwards & Co., Rockland ; got by Village Champion (imp.) =40433=; dam Pine Grove Clipper 3rd =35251=, by British Knight =25296=.
2nd, Vain Baron =48584= roan ; calved January 3, 1903 ; bred and exhibited by T. E. Robson, Ilderton ; got by Vanguard =37139=; dam Isabella 14th =48080=, by Maxon =24864=.
3rd, Lord Victor =48594= red ; calved January 20, 1903 ; bred and exhibited by John Dryden & Son, Brooklin ; got by Prince Gloster =40990=; dam Victoria Princess =26730= Color Guard =20969=.
4th, Missie's Pride (imp.) =Vol. 20= red ; calved February 3, 1903 ; bred by Mrs. Murray, Fairfolds, Scot.; imported and exhibited by James I. Davidson, Balsam ; got by Lord Inverary (79260); dam Blue Bell, by Graceful Lad (79010).
5th, Crimson Robin =48213= red roan ; calved February 1, 1903 ; bred and exhibited by George D. Fletcher, Binkham ; got by Spicy Robin =28259=; dam Crimson Fuchsia 12th =34535=, by Clan Campbell (imp.) =17089= (63794).

BULL, SENIOR CHAMPION.

1st, Spicy Marquis (imp.) =36118=. Exhibited by W. D. Flatt, Hamilton, Ont.

BULL, JUNIOR CHAMPION.

1st, Clipper Hero =44785= Exhibited by John Dryden & Son, Brooklin, Ont.

Cow, 4 years old and over.

1st, Gem of Ballechin (imp.) =31174= red and white; calved January 1, 1898; bred by A Robertson, Haugh-of-Ballechin, Ballerling, Scot.; exhibited by J. A. Crerar, Shakespeare; got by Mutineer (69169); dam Gem of Verona 3rd, by Gem of Pennan (59002).

2nd, Missie 153rd =43543= red; calved February 20, 1896; bred by W. S. Marr, Uppermill, Scot.; imported and exhibited by W. C. Edwards & Co., Rockland; got by Wanderer (60138); dam Missie 123rd, by William of Orange (50694).

3rd, Water Cress (imp.) =38181= roan; calved January 25, 1869; bred by Jas. Thompson, Balbegno, Fettercairn, Scot.; exhibited by Goodfellow Bros., Macville; got by Marshfield (62980); dam Wilfrid 4th, by Marshfield (62980).

4th, Rosa Bonheur =37128= red; calved December 17, 1898; bred and exhibited by J. & W. Russell, Richmond Hill; got by Golden Measure =30942=; dam Royal Princess =16779=, by General Booth (imp.) =6395=.

5th, Mayflower 3rd =40878= roan; calved December 4, 1898; bred and exhibited by Wm. McDermott. Living Spring; got by Royal Sailor (imp.) =18959=; dam Living Spring Lass =16308= by King William =9307=.

Cow, 3 years old under 4 years.

1st, Gem of Ballechin 2nd =39276= red and white; calved September 3, 1899; bred and exhibited by James A. Crerar, Shakespeare; got by Diamond Jubilee (imp.) =28861=; dam Gem of Ballechin (imp.) =31174=, by Mutineer (69166).

2nd, Martha 4th (imp.) =38272= red; calved November 3, 1899; bred by W. Anderson, Saphock, Scot.; imported and exhibited by W. G. Pettit & Sons, Freeman; got by Spicy King (75717); dam, Martha 3rd (imp.) —38271—, by Royal Mail (69477).

3rd, Orange Blossom 2nd =48525= roan; calved June 7, 1900; bred by J. Young, Tilbouries, Scot.; imported by Alex. Isaac, Cobourg; exhibited by Goodfellow Bros., Macville; got by Scottish Prince—(73593); dam Orange Blossom, by Remus (73402).

4th, Olive Wenlock 2nd (imp.) =48379= roan; calved January 17, 1900; bred by R. Menzies, Tirinie, Scot.; imported by H. J. Davis, Woodstock; exhibited by Israel Groff, Alma; got by Major of Sanquhr (74988); dam Olive Wenlock, by Oliver Cromwell (69199).

5th, Rosabel 4th =44569= red and white; calved May 10, 1900; bred and exhibited by Jas. A. Crerar, Shakespeare; got by Captain Mayfly (imp.) =28858=; dam Rosabel 2nd =26627=, by 10th Crown Jewel =16607=.

Heifer, 2 years old and under 3.

1st, Topman's Queen =52536= roan; calved September 20, 1900; bred and exhibited by T. E. Robson, Ilderton; got by Topman =17847=; dam Molly Lorne =29282=, by Golden Robe =20396=.

2nd, Lily of Pine Grove 2nd =44890= dark roan; calved February 12, 1901; bred and exhibited by W. C. Edwards & Co., Rockland; got by Marquis of Zenda (imp.) =26064=; dam Lily (imp.) =34198=, by Matadore (67461).

3rd, Roan Mary =45970= roan; calved September 17, 1900; bred by Wm. Mackintosh, Burgoyne; exhibited by Israel Groff, Alma; got by Golden Count =26440=; dam Queen Mary 2nd =66203=, by Rantin Robin =24378=.

4th, White Flower 3rd =14899= white; calved November 25, 1900; bred and exhibited by W. C. Edwards & Co., Rockland; got by Marquis of Zenda (imp.) =26064=; dam White Flower 2nd (imp.) =34208=, by Statesman (71687).

5th, Pandora (imp.) =48456= red; calved February 14, 1901; bred by James Durno, Jackston, Scot.; imported by W. D. Flatt, Hamilton; exhibited by Haining Bros., Highgate; got by Lovat Champion (74948); dam Lenora, by Lord North (57656).

Heifer, calved before Jan. 1, 1902, and under 2 years.

1st, Golden Bud =49995= white; calved September 25, 1901; bred and exhibited by W. C. Edwards & Co., Rockland; got by Marquis' Heir =34311=; dam Golden Wreath 11th (imp.) =38004=, by Knuckle Duster (imp.) =28868= (72793).

2nd, Bertie 4th =49929= red; calved September 26, 1901; bred and exhibited by Jno. Dryden & Son, Brooklin; got by Prince Gloster =40998=; dam Bertie 3rd =39464=, by Collynie Archer (imp.) =28860=.

3rd, Lady Winsome =44992= roan; calved September 23, 1901; bred by George Bothwell, Nettleton, Mo.; exhibited by T. E. Robson, Ilderton; got by Winsome Duke 11th =10100=; dam Blossom 8th, of Maine Valley =48129=, by Lauderdale (imp.) =40391=.

4th, Susan 2nd (imp.) =43564= red; calved October 5, 1901; bred by T. F. Jamieson, Ellon, Scot.; imported by W. C. Edwards & Co., Rockland; exhibited by James I. Davidson, Balsam; got by Mountain Archer (71026); dam Susan, by Hall Mark (67164).

5th, Necklace 28th =(Vol. 20)= red, little white; calved December 10, 1901; bred and exhibited by Jas. I Davidson, Balsam; got by Sittyton Hero 15th =38861=; dam Necklace 22nd =25148=, by Scottish Prince =14828=.

Heifer, calved on or after June 1, 1902.

1st, Missie of Pine Grove (imp.) =48684= dark roan; calved January 7, 1902; bred by W. S. Marr, Uppermill, Scot.; exhibited by W. C. Edwards & Co., Rockland; got by Bapton Favorite (76080); dam Missie 153rd (imp.) —43543—, by Wanderer (60138).

2nd, Orange Blossom =5004= roan; calved February 20, 1902; bred and exhibited by W. C. Edwards & Co., Rockland; got by Marquis of Zenda (imp.) =26064=; dam Flora (imp.) =34196=, by Topsman (63447).

3rd, Duchess of Athelstane 4th =50518= roan; calved February 2, 1902; bred and exhibited by Israel Groff, Alma; got by Royal Hero =34679=; dam Duchess of Athelstane 2nd =28323=, by Lyndhurst 2nd =18276=.

4th, Mamie Stamford =50389= roan; calved February 25, 1902; bred and exhibited by Goodfellow Bros., Macville; got by Golden Standard =34680=; dam Salem Stamford =33939=, by Lynden Chief =22608=.

5th, Sally of Pine Grove 2nd =5007= white; calved January 2, 1902; bred by W. C. Edwards & Co., Rockland; exhibited by W. D. Flatt, Hamilton; got by Marquis of Zenda (imp.) =26064=; dam Sally 8th (imp.) —38020—, by Jemidar (70671).

Heifer Calf, calved before June 1, 1903.

1st, Dolly Marquis —(Vol. 20)— dark roan ; calved September 7, 1902 ; bred by J. Gibb, Brooksdale ; exhibited by W. D. Flatt, Hamilton ; got by Spicy Marquis (imp.) —36118— (80032) ; dam Dolly Euaenid —20789—, by Chivalry —14839—.
2nd, Spicy Whimple (imp.) —(Vol. 20)— roan ; calved October 3, 1902 ; bred by W. Anderson, Saphock, Scot.; exhibited by R. & S. Nicholson, Sylvan ; got by Spicy King (75717) ; dam Lady of Bell Hope (imp.) (Vol. 20), by Prince of the Vale (77501)
3rd, Pine Apple of Sylvan 2nd —(Vol. 20)— roan ; calved September 26, 1902 ; bred and exhibited by R. & S. Nicholson, Sylvan ; got by Chief of Stars (imp.) —32054—; dam Pine Apple 12th (imp.) —31108—, by Challenger (70122).
4th, Fairy Queen 9th (imp.) —(Vol. 20)— roan ; calved November 9, 1902 ; bred by J. Young, Tilbouries, Scot.; imported in dam by Alex. Isaac, Cobourg ; exhibited by Goodfellow Bros., Macville ; got by King Victor (81394) ; dam Tilbouries Fancy (imp.), by Scottish Prince (73593).
5th, Beatrice —(Vol. 20)— red ; calved October 18, 1902 ; bred and exhibited by John Dryden & Son, Brooklin ; got by Prince Gloster —409998—; dam Bloom —39454—.

Heifer Calf, calved on or after Jan. 1, 1903.

1st, Zoe of Pine Grove 3rd =(Vol. 20)= red ; calved January 15, 1903 ; bred and exhibited by W. C. Edwards & Co., Rockland ; got by Marquis of Zenda (imp.) =26064=, out of Zoe 4th (imp.) by Lord James =(67361)=
2nd, Nonpareil Beauty 5th =(Vol. 20)= roan ; calved February 21, 1903 ; bred and exhibited by J. & W. Russell, Richmond Hill ; got by Fitz-Stephen Forester (imp.) =36030=, out of Nonpareil's Beauty =26011=, by Stanley =7949=.
3rd, Belinda 4th =(Vol. 20)= red ; calved January 1, 1903 ; bred and exhibited by W. G. Pettit & Sons, Freeman ; got by Scotland's Pride (imp.) (79907), out of Belinda (imp.) =38245=, by Martin (64407).
4th, Spicy's Queen =(Vol. 20)= roan ; calved January 7, 1903 ; bred by Jas. Gibb, Brooksdale ; exhibited by W. D. Flatt, Hamilton ; got by Spicy Marquis (imp.) =36118= (80032), out of Lena Hazelwood =32103=, by Lord Lossie 6th =19947=.
5th, Rosy Marquis =(Vol. 20)= roan ; calved February 4, 1903 ; bred by Jas. Gibb, Brooksdale ; exhibited by W. D. Flatt, Hamilton ; got by Spicy Marquis (imp.) =36118= (80032), out of Miss Eugenie =29791=, by Chivalry =14339=.

Senior female champion.

1st, Gem of Balledim (imp.) =31174= ; exhibited by Jas. A. Crerar, Shakespeare.

Junior female champion.

1st, Golden Bud =19995= ; exhibited by W. C. Edwards & Co., Rockland.

Four calves bred and owned by exhibitor.

1st, T. E. Robson, Ilderton.
2nd, W. C. Edwards & Co., Rockland.
3rd, Goodfellow Bros., Macville.
4th, R. C. S. Nicholson, Sylyan.

Best 3 animals, get of one bull, owned by exhibitor.

1st, W. C. Edwards & Co., Rockland.
2nd, W. D. Flatt, Hamilton.
3rd, T. E. Robson, Ilderton.
4th, Israel Groff, Alma.

Bull and four females, under 2 years, owned by exhibitor.

1st, T. E. Robson, Ilderton.
2nd, Goodfellow Bros., Macville.
3rd, J. Dryden & Son, Brooklin.
4th, W. D. Flatt, Hamilton.

Herd of one bull and four females, over 1 year, owned by exhibitor

1st, W. C. Edwards & Co. 2nd, Jas. A. Crerar. 3rd, T. E. Robson.

Three females, bred and owned by exhibitor.

1st. Jas. A. Crerar. 2nd, W. C. Edwards & Co. 3rd, Goodfellow Bros.

Bull and 3 of his get, owned by exhibitor.

1st, W. D. Flatt, Hamilton. 2nd, W. C. Edwards, Rockland. 3rd, J. Dryden & Son, Brooklin.

Cow and 2 of her progeny, owned by exhibitor.

1st, W. C. Edwards & Co. 2nd, Goodfellow Bros. 3rd, Jas. A. Crerar.

Steer sired by shorthorn bull, calved before Jan 1, 1902, and under 2 years.

1st, Jas. Leask, Greenbank ; sire, Knight Errant. 2nd, Alfred Hales, Guelph.

Steer sired by shorthorn bull calved before Jan. 1, 1903, and under 1 year.

1st, Jas. Leask, Greenbank. 2nd, A. Hales, Guelph. 3rd, J. Fried, & Son, Roseville.

Steer calf, sired by shorthorn bull calved before Jan. 1, 1903, and under 1 yaer.

1st, Jas. Leask, Greenbank. 2nd, J. Fried & Son, Roseville.

Steer calf, sired by shorthorn bull, calved on or after Jan 1, 1903.

1st, J. Fried & Son, Roseville.

Canadian Ayrshire Breeders' Association.

ANNUAL MEETING.

The sixth annual meeting of the Canadian Ayrshire Breeders' Association was held in Richmond Hall, Toronto, February 2nd, 1904, 2.30 p.m., President Hon. Senator Owens in the chair.

The minutes of the last meeting were taken as read.

The Secretary presented his annual report, and on motion it was resolved: "That the Secretary's report be adopted, with amendments as suggested at the Directors' meeting."

PRESIDENT'S ADDRESS.

By Hon. Senator Owens, Montreal, Que.

Permit me to congratulate you on the very prosperous condition of your Association. The Secretary-Treasurer's report shows that two hundred and seventy-three members paid the membership fee before the 31st of December last, 1,753 pedigrees have been registered, and five hundred transfers recorded. The financial statement shows cash balance on hand of $724.00 after paying all expenses; that the total assets of your Association amount to $3,463.

And what is of much more importance to your Association is the growing popularity of the Ayrshire cattle. I think the Ayrshire breeders present will agree with me that the demand for Ayrshires this year has exceeded all former years.

It is gratifying to be able to report that at the milking competition that took place at Guelph, Ont., and at the Maritime Winter Fair, held at Amherst on the 14th of December last, the Ayrshire cows won by several points over any of the pure bred dairy cows on the ground, and that a competition where Jersey, Guernsey, the Holstein, and Shorthorn were well represented. But it is not those forced competitions that bring out the qualities of the Ayrshire cow; her true qualities lie in being able to produce a large flow of good milk during the whole year under such conditions as should exist upon every dairy farm.

We have reason to believe that we have in the Ayrshire the very best dairy animal for our Canadian farmers, being good graziers, active and hardy cattle. They do well on our hilly and rough pasture lands, and for that reason they keep in good condition and give a good flow of milk when feeding on pastures which some other breed of dairy cattle would almost starve. Hence they are better fit by nature to adapt themselves to the conditions and surroundings of the farmers and dairymen generally, and for that reason they are termed by many the farmer's cow, or the general purpose dairy cow. They will produce the largest and best yield of milk, butter or cheese, at the least expense for food, and are well adapted to any of the different lines or branches of dairying, and it is for that reason I adopted the Ayrshire cow when I started the dairy farm.

Situated as I am, with the creamery and cheese factory at my door, and within ten minutes' drive of the railway station, I realized that with Ayrshire cows I would be in a better position than with any other breed to take up that branch of dairying which would be most profitable, for instance, while building up our herd we made

butter or shipped cream, retaining the skimmed milk on the farm, and later having been in a position to ship milk to advantage during the winter season, when it commanded a high price. I am satisfied I made no mistake when adopting the Ayrshire cow.

In looking over an old agricultural journal, I observe the Ayrshire cow described as an economical dairy cow, yielding from five thousand to six thousand pounds of milk yearly, whereas the Ayrshire cow of to-day can better be described as a cow giving 8,000 to 12,000 pounds of milk yearly; and we may ask ourselves are we doing all possible to push the Ayrshire to the front as a producer. I have often felt that the Ayrshire breeders are too modest, and fail to extol the virtues of their favorite cattle as they should do. They appear to think that because they have the better breed of dairy cattle for Canada, they can afford to remain quiet, and allow others (less favored) to do the blowing; but, I ask, is that doing justice to the Ayrshire?

Assembled as we are to-day in the interest of the Ayrshire dairy cow, it is right and proper that we should make such suggestions and adopt such methods as we consider advisable to the interests of our favorites, and inquire how we can best breed that cow to have her constantly produce the largest quantity of good milk at the least possible cost. I have no doubt it is the experience of many of those breeders present who have kept a careful record of the daily yield of each individual cow, to find that the cow which stands at the head of the dairy list, as a producer would not take a prize in any show ring under present conditions.

This will apply not only to breeders of Ayrshires, but even more forcibly to the importers, and we have with us to-day some of our largest importers—gentlemen who have endeavored to bring to Canada the very best Ayrshires that could be found in Scotland or elsewhere—and I may venture to say that may have often found it difficult to decide between the dairy cow and her sister that would lead in the show ring, or that they have been obliged to pass over the best dairy cows because there was no place for them in the show ring.

Hence, we may ask the question, Are we breeding for the dairy or the show ring?

At present there is no distinctive agreement as to the most desirable type of cow in connection with productive powers. That must be first determined if true progress is to be expected.

I am aware that many of our breeders consider that a change should be made in the scale of points for the show ring, with a view of producing a model of a more distinctive dairy Ayrshire, and as this is the time and the place where action should be taken if we are to attain the result desired, I make those suggestions with a view of having that question discussed by the practical gentlemen who are present here to-day, and who are so deeply interested in the advancement of the Ayrshire in Canada.

REPORT OF SECRETARY-TREASURER.

We have recorded 1,733 pedigrees, and have transferred the pedigrees of 500 animals during the year—83 more pedigrees and 23 more transfers that last year, which is satisfactory.

This year 237 members have paid their subscriptions—a little better than last year, but there should be more from this Association.

Vol. 12 was issued last year, and sent out to members. It contains 1,735 pedigrees, several pages of transfers, and the annual report of this Association for 1902. Vol. 13 is ready to print.

Exhibitions.

A very satisfactory display of Ayrshires was made at Ottawa, Toronto, London, Sherbrooke, Que., Halifax, N.S., Fredericton, N.B., Winnipeg, Man., Calgary, Alta., New Westminster, B.C., and Victoria, B.C.

The sum of $104.00 was paid to the Cattle Breeders' Association to make 208 members of that Association, and the amount was divided between Guelph and Ottawa Fat Stock and Dairy Shows for prizes. Six dollars was also paid to make 12 members of the Maritime Breeders' Association, and $44.00 cash to make a grant of $50.00 for prizes at that show.

The Championship Dairy Test at Guelph was won by H. & J. McKee, of Norwich, with Sarah 2nd—13,192—, scoring 147.04 points, or about five points over a Holstein, which scored 142.52 points; consequently he won the $50.00 Sweepstake.

Mr. Fred. S. Black, of Amherst, N.S., also won the Championship of $50.00 at Amherst with his cow Jennie of Lauries (imp.)—11,079—, which scored 106.97 points.

This is the eighth time that these Championships have been won by Ayrshires at different exhibitions, and is very satisfactory. In addition to this $25 was given to Winnipeg and $25 to Calgary for the best pair of Ayrshires, composed of a bull one year old and over, and a female over two years of age. The total amount paid out for prizes in 1903 was $304. Fifty dollars was also paid to Mr. Westervelt for advertising cattle in the North-West.

Herd Books sold and sent out to members :

Vol. 1, Can., 2 copies ; Vol. 2, Can., 2 copies ; Vol. 3, Can., 3 copies ; Vol. 4, Can., 3 copies ; Vol. 5, Can., 5 copies ; Vol. 2, Dom., 2 copies ; Vol. 3, Dom., 6 copies ; Vol. 9 (new series), 27 copies ; Vol. 10, 32 copies ; Vol. 11, 46 copies, and Vol. 12, 111 copies. Total, 239 copies.

I am sorry that 182 pedigrees and 24 transfers were not paid for by the Eastern Office before the auditor closed the books, and consequently do not appear in this year's financial statement.

The annual meeting was held in Montreal last year, and seven Directors were elected there for two years. At this meeting it will be necessary to elect seven from the Western district. The Directors will elect from among themselves a President, a Vice-President ; also from among the members Vice-Presidents from the different Provinces and Territories and delegates to the different exhibitions Also they shall elect from among themselves six to constitute an Executive Committee, three from the East and three from the West, and a Revising Committee of five to investigate pedigrees, if required

At a meeting of representatives from the various Live Stock Associations in Canada, held at the Walker House, Toronto, November 11th, 1903, the following resolution was passed :

"Representing the dairy breeders at the public meeting of live stock men, we respectfully suggest that unless the existing trade restrictions are withdrawn it would be no benefit to us as dairymen to make an exhibit of cattle at St. Louis, and request that no assistance should be given by the Dominion Department to assist in holding the exhibition unless this is done : also that Canadian records should be accepted by the authorities of this exhibition." Carried.

W. W. BALLANTYNE, Stratford.
WM. STEWART, Jr., Menie.

As far as we can ascertain(during the past year the following gentlemen have imported Ayrshires : R. Hunter & Sons, Maxville, Ont., 14 ; Robert Reford, St. Anne de Bellevue, Que., 11 ; P. A. Gouin, Three Rivers, Que., 5 ; A. Hume, Menie, R. Ness, Howick, Que., D. McFarlane, Kelso, Que., J. N. Greenshields, Danville, Que., John Black, Lachute, Que., W. W. Ogilvie, Lachine Rapids, Que., 1 each ; total, 36.

FINANCIAL STATEMENT.

For the Year Ending December 31st, 1903.

Receipts.

Balance brought forward	$ 789 89
237 members at $2	474 00
Volumes sold	17 00
Registration fees : 1,551 pedigrees, 264 transfers	1,398 55
	$2,679 44

Expenditure.

Printing, stationery, etc.	$ 73 42
Postage	100 37
Printing Herd Book, Vol. 12	486 45
Prizes	200 00
Cattle Breeders' Association, 208 members	104 00
Montreal agency : 306 pedigrees at 20c., $61.20; 73 transfers at 5c., $3.65; postage and stationery	76 31
Committee expenses	255 20
Auditor	12 20
Insurance	7 00
Advertising schemes	50 00
Commission : 1,551 pedigrees at 5c., $542.85; 476 transfers at 10c. $47.60	590 45
Balance on hand	724 24
	$2,679 44

Assets on December 31, 1903.

Cash on hand	$ 724 24
483 volumes Dominion Herd Book Record	483 00
116 " Canadian Herd Book	116 00
146 Vol. IX. at $2.00	292 00
193 Vol. X. at $2.00	386 00
342 Vol. XI. at $2.00	684 00
389 Vol. XII. at $2.00	778 00
	$3,463 24

Audited and found correct.

CHAS. F. COMPLIN, Auditor.
HENRY WADE, Secretary-Treasurer.

Toronto, Ont., January 21st, 1904.

OFFICERS FOR 1904.

Honorary President ..... F. W. Hodson, Ottawa, Ont.
President ..... Senator Owens, Montreal, Que.
1st Vice-President ..... Alex. Hume, Que.

Vice-Presidents :

Ontario—J. L. Wilson, Alexandria.
Quebec—Robert Ness, Howick.
Manitoba—Geo. Steele, Glenboro'.
Assiniboia—J. C. Pope, Regina.
British Columbia—A. C. Wells, Chilliwack.
P. E. Island—Jas. Easton, Charlottetown.
Nova Scotia—C. A. Archibald, Truro.
New Brunswick—H. M. Parlee, Sussex.

Life Members :

Hon. Thos Ballantyne, Stratford.
Jas McCormack, Rockton.
David Morton, Hamilton.
Thos. Irving, North Georgetown, Que.
Jos. Yuill, Carleton Place.
John Morrin, Belle Riviere, Que.
John Crosby, Campbellford.
David Benning, Williamstown.

Directors :

Ontario :
J. G. Clark, Ottawa.
W. W. Ballantyne, Stratford.
A. Kains, Byron.
John McKee, Norwich.
Wm. Stewart, Jr., Menie.
A. Hume, Menie.
J. C. Smith, Hintonburg.

Quebec :
Jas. Boden, Ste. Anne de Bellevue, Que.
T. D. McCallum, Danville, Que.
Senator Owens, Montreal, Que.
R. Hunter, Maxville.
R. R. Ness, Jr., Howick, Que.
Nap. Lachapelle, St. Paul l'Ermite, Que.
W. F. Stephen, Trout River, Que.

Executive Committee : (Eastern Division) R. Hunter, Senator Owens, Nap. Lachapelle. (Western Division Wm. Stewart, Jr., W. W. Ballantyne, and J. C. Smith.

Revising Committee : F. W. Hodson, Senator Owens, J. C. Smith, Robert Ness, and H. Wade.

Auditors : (Ontario) C. F. Complin, London. (Quebec) Senator Owens, Montreal.

Secretary-Treasurer : Henry Wade, Parliament Buildings, Toronto, Ont.

Eastern Secretary : J. P. L. Berube, Montreal, Que.

Delegates to Industrial Exhibition : W. W. Ballantyne, and Wm. Stewart, Jr.

Delegates to Western Fair : A. Kains, and D. Hill, Delaware.

Delegates to Ottawa Winter Fair : J. G. Clark, and J. C. Smith.

Delegates to Ottawa : Alex. Clark, Brinstin's Corners, and Robt. Hunter, Jr., Maxville.

Delegates to Sherbrooke, Que.: T. D. McCallum, and Robert Ness.

Delegates to Quebec : Nap. Lachapelle, and Senator Owens.

Delegates to Dominion Cattle Breeders' Association : W. W. Ballantyne, and H. Wade.

Judges Recommended :

Toronto Industrial : W. W. Ballantyne, and A. Kains; reserve, W. F. Stephen.
Ottawa Central : A. Hume ; reserve, D. Drummond.
London Western : W. F. Stephen ; reserve, Thos. Bradshaw.
Sherbrooke Exhibition : Jas. Boden ; reserve, Jas. Bryson, Brysonville.
Quebec Exhibition : Nap. Lachapelle ; reserve, Thos. Drysdale.
Three Rivers Exhibition : Thos. Irving, Jr., North Georgetown, Que.
St. John's Exhibition, Que.: Jas. Bryson, Brysonville, Que.
Winnipeg : A. Kains, Byron ; reserve, Daniel Drummond, Ottawa.

Mr. F. W. Hodson, Dominion Live Stock Commissioner, outlined the results of his official visit to St. Louis, and also explained to the breeders the exact condition of the regulations existing between the United States and Canada, and produced letters from the United States Department of Agriculture substantiating the same.

Moved by J. G. Clark, seconded by R. R. Ness : "That the Canadian Ayrshire Breeders' Association, in annual meeting assembled, endose the action of our representatives at the meeting held in the Rossin House, November 11th, 1903, and also the position taken by the Dominion Live Stock Commissioner in relation to the St. Louis Exposition." Carried.

Mr. Hodson also outlined the scheme for the establishment of a National Live Stock Association, and on motion it was resolved : "That the proposition of the Live Stock Commissioner, Mr. F. W. Hodson, in forming a National Live Stock Association to be held in March, be endorsed by this annual meeting of the Canadian Ayrshire Breeders' Association." Carried.

The following delegates were appointed to attend : W. W. Ballantyne, Stratford, Ont.; J. C. Smith, Hintonburg, Ont.; Wm. Stewart, Jr., Menie ; Hon. Senator Owens, Montreal, Que.; Robert Ness, Howick, Que.; R. Hunter, Maxville, Ont.

The following were also named to represent the Ayrshire interests :

Maritime Provinces: C. A. Archibald, Truro, N.S.; M. Eastman, Charlotteville, P. E.I., and H. M. Parlee, Sussex, N.B.

British Columbia: A. C. Wells, Chilliwack, B.C.

Manitoba: Geo. Steeles, Glenboro', Man.

Northwest Territories: C. W. Peterson, Calgary, Alta.

RESOLUTIONS.

Communication was read from Mr. George Steele, of Glenboro', Man., asking the Association to make a liberal grant to the Dominion Exhibition, Winnipeg, this year.

"That the sum of $100 be donated by the Canadian Ayrshire Breeders' Association towards the prize list in the Ayrshire Department of the Winnipeg Exhibition; all animals competing to be registered in the Canadian Herd Book." Carried.

A committee was appointed and recommended to the meeting the following distribution of the hundred, to be applied in three prizes.

1st. To a herd composed of one bull and four females, two years old and over; the females to be bred and all to be owned by the exhibitor..... $40 00

2nd. Herd composed of one bull and four females, under two years old; females to be bred and all to be owned by the exhibitor 30 00

3rd. Three animals, any age or sex, the progeny of one bull, bred and owned by the exhibitor..... 30 00

The recommendation of the committee was adopted.

"That the sum of $25 be donated by this Association to New Westminster and $25 to Victoria, to be given as a herd prize for an Ayrshire bull and two females, owned by exhibitor. All animals competing to be recorded in the Canadian Ayrshire Herd Book." Carried.

On motion it was resolved: "That the Ontario and Maritime Province members of the Ayrshire Association be made members of the Cattle Breeders' Association and Maritime Stock Breeders' Association at the rate of 50 cents per member."

"That the sum of $75 be donated to each of the following places: Amherst, N.S., Ottawa and Guelph Winter Fairs; $50 be given as a sweepstake for cow, and $25 as a sweepstake for heifer, providing the highest scoring be made by pure bred Ayrshires in the dairy test. All Ayrshires competing to be registered in the Canadian Ayrshire Herd Book." Carried.

Mr. J. G. Clark suggested, now that they have a Railway Commission, delegates should be appointed from the Ayrshire Association to act in conjunction with delegates from other associations to draw up a petition to the Railway Commission setting forth their grievances and the amendments they desired to have made in the transportation of animals.

On motion it was resolved: "That Mr. F. W. Hodson be a delegate from this Association to the Railway Commission."

JUDGING HERDS.

W. W. Ballantyne: There has been a matter that came under my notice this fall in judging, and a good deal of space has been taken up in the newspapers, that is, judging the herds first at the exhibitions. I think this is the proper place to discuss this, and say whether we should judge the herds first at the exibitions or leave them to the last. I would like to see the matter brought up. In some respects I am very much in favor of it. It is a way of getting the cows milked out quicker than they otherwise would be. For instance, you take judging the cows first and the females down the line, these cows have to be kept, perhaps, to the very last thing at night if the herd should be judged near the last, whereas, judging the herds first nothing but the sweepstakes animals are kept.

MEMBERS OF CANADIAN AYRSHIRE ASSOCIATION, 1903-4.

Agricultural School..L'Assomption, Que.
Agricultural School..Ste. Ann De la Pocatier, Que.
Aikenhead, John.....Hartney, Man.
Alexander, Joseph....Mascousche Rapids, Q.
Albright, M. S.....St. Andrews, Que.
Anderson, Robt.....North Georgetown, Q.
Archibald, C. A.....Truro, N. S.
Armstrong, James....Shawville, Que.
Aylwin, Chas. S.....Freeman.

Ballantyne, W. W....Stratford.
Beatey, David.....Chapman.
Begg, A. V.....Moose Creek.
Bell, James, M.D.....Montreal, Que.
Bell, J. H. & Son....Farnham Centre, Que.
Benham, Jesse & Son..Sweetsburg, Que.
Benning, David.....Williamstown.
Bigelow, Samuel....Canning, N. S.
Black, Fred. S.....Amherst, N. S.
Blue, John.....Eustis, Que.
Bogart, J. W.....Morewood.
Bond, Hon. Robt....St. Johns, Nfld.
Bonin, H.....St. Jean de Martha, Q.
Bonin, Joseph.....St. Jean de Martha, Q.
Bonne-Enfant, Jos...St. Paul L'Ermite, Q.
Brown, Alf.....Hemingford, Que.
Bryson, Jas.....Brysonville, Que.
Bullock, W. J.....Lakefield.

Campbell, A.....Howick, Que.
Callander, Jas.....North Gower.
Campbell, John R....Vernon.
Central Ex. Farm....Ottawa.
Champion, W. M....Reaburn, Man.
Clarke, J. G.....Ottawa.
Clarke, Alex.....Brimston's Corners.
Cleland, Archie.....Hemmingford, Que.
Cleugh, Wm.....Campbellford.
Collison, Jas.....Dixon's Corners.
Cottingham, Jas.....Ormstown, Que.
Crosby, John .. ..Campbellford.
Creighton, J. C.....Hawley.
Cumming, D.....Russell.
Cumming, A. J.....Heckstone.
Cumming, D.....Lancaster.
Cunningham, John..Norval.

Davies, Geo.....Toronto.
Davies, Robt .....Toronto.
Dawes, James P.....Lachine, Que.
Dawes & Co.....Lachine, Que.
Denyes, H. K.....Foxboro.
Denes, Arsene.....St. Norbet, Que.
Dingwall, Jas.....Williamstown.
Drummond, Arch....Petite Cote, Que.
Drysdale, Thos.....Allen's Corners, Que.
Dundon, John.....St. Rock, Que.
Dunfield Bros.....Dauphine, Man.
Dyment, N.....Clappison's Corners.

Easton, Jas.....Charlottetown, P.E.I.
Edwards & Co., W.C..Rockland.
Empey, Adam .....Springfield.

Farlinger, W. K.....Morrisburg.
Findlay, Jas.....Beachburg.
Fisher, Hon. Sydney.Knowlton, Que.
Fairbairn, Thos.....Billing's Bridge.
Fulton, Geo.....Fulton's Mills.
Fox, M. C.....Cobourg.

Gaw, Jas.....Shefford Vale, Que.
Gibbons, W. T.....North Cote.
Gilroy, Jos.....Lyn.
Girouard, Eli.....St. Victoire, Que.
Goodliffe, Syd. J ....Sussex, N. B.
Greenshields, J. N...Danville, Que.
Greenway, Hon. T...Crystal City, Man.
Greig, Wm.....Allan's Corners, Que.
Gray & Son, E.....Waterville, N. B.

Hamilton, John.....Grande Freniere, Que.
Hardy, Wellington...Roland, Man.
Hay, Wm.....Howick, Que.
Hearn, Michael.....Burke, N.Y., U.S.
Hendy, Chas.....Campbellford.
Henderson, G. G....Sarnia.
Hicks, Chas.....Harrowsmith.
Hill, Geo.....Delaware.
Hodson, F. W.....Ottawa.
Hudson, Joseph.....Lyn.
Howden, John.....St. Louis de Gonazque, Que.
Howie, C. W.....Eden.
Hume & Co., A.....Menie.
Hunt, John.....Russell.
Hunter, Robt.....Maxville.

Imerson, C. J.....Lyn.
Innes, P.....Coldbrook Station, N.S.
Irving, Archie.....Scotstown, Que.

Jackson, W. R.....Niagara-on-the-Lake.
James, J. A.....Nilestown.
Johnston, D. R.....Lansdowne.
Jeffries, W. A.....Sussex, N.B.

Kains, Arch.....Byron.
Kennedy & Son, A..Vernon.
Knight, Joshua.....Elginburg.
Kinsey, Jos.....Doon.
Kydd, W.....Petite Cote, Que.
Ketchum, G. A.....Wallacebridge.

Lachapelle, Nap.....St. Paul L'Ermite, Q.
Lamarche, Horace...St. Esprit, Que.
Legris, W.....St. Leon, Que.
Logan, J. W.....Allan's Corners, Que.
Langelier, Gur. A....Quebec City.

Marsh & Sons, E.....Gladstone.
Massey, W. E. H....East Toronto.
Massicotte, Clair.....St. Prosper, Que.
Mansean, F.....Nicolet, Que.
Mellick, Aaron .....Smithville.
Miller, Wm.....Marshfield, P.E.I.
Model Farm.....Compton, Que.
Morrin, Jno.....Belle Riviere, Que.

MEMBERS OF CANADIAN AYRSHIRE ASSOCIATION, 1903-4.—Concluded.

Morrin, Thos .....Lachute, Que.
Mousseau, A.....Berthier, Que.
Muir, G. H.....Bougie, Que.
Muir, Arc , sr.....Huntingdon, Que.
Murphy, R. G.....Elgin.

McCallum, T. D.....Danville, Que.
McCartney, Thos.....Longburn, Man.
McCord & Son, Jas ..Prescott.
McCormick & Sons, J.Rockton.
McCubben, Alex.....Grande Freniere, Que.
McCulloch, Jas.....Sterveston, B.C.
McDonald, Jno. A....Williamstown.
McDonald, F. E.....Bloomfield.
McDonald, John ....New Glasgow, N.S.
McDowell, W. H....Vicars, Que.
McFarlane, D. A....Kelso, Que.
McFarlane, Robt.. Riverfield, Que.
McKee, H. & J .....Norwich.
McLellan, W. & A..Forrester's Falls.
McMillan, P. D.....Alexandria.
McLeod, W. D.....Kirkhill.
McIntosh, Peter..... Cass Bridge.
McMaster, J. A .....Summerstown.
McMillan, D. E .....Laggan.
McOuat, Jas.....Brownsberg, Que.
McIntyre Bros.....Sussex Corners, N.B
McCormick, D. A ...Allan's Corners, Que.

Ness, D. T.....Howick, Que.
Ness, Robt.....Howick, Que.
Ness, R. R.....Howick, Que.

Ogilvie, W. W.....Lachine Rapids, Que.
Ontario Ag. College..Guelph.
Owen, Hon. Wm....Montreal, Que.
Oliver, Jno.....Campbellford.

Parlee, M. H.....Sussex, N.B.
Parker, W. D.....Hatley.
Parsons, J. F.....Hatley.
Paton, H.....Montreal, Que.
Pope, J. C.....Regina, Assa.
Provin'l Stock Farm..Charlottetown, P.E.I.
Peters, J. M.... .....West Brome, Que.

Rathbun Co.....Deseronto.
Reford, Robt.....Ste.Anne de Bellevue,Q.
Reid & Co., R.....Hintonburg.
Rivet, Chas.....Joliette, Que.
Robertson, R.....North Georgetown,Que.
Roy, A.....Riverfield, Que.
Robertson, A.....South Augusta.
Rivet, O. St. Paul....Joliette, Que.

Simpson, Jas.....South Augusta.
Smith, H. M.....Scotland.
Snyder & Son, J. H..Attercliffe.
Steacy, R. G.....Lyn or Brockville.
Steel Bros.....Glenboro, Man.
Stephen, W. F.....Trout River, Que.
Stewart, Wm.....Menie.
Stewart, Jas. A., sr...Menie.

Taylor, F. W.....Wellman's Corners.
Terrill, A.....Wooler.
Thibaudeau, D.....North Nation Mills, Q.
Thorn, Wm.....Lyndoch.
Thompson & Sons,S.J St James, Man.
Tipping, J. A.....Clarenceville, Que.
Tisdale, N.....Courtland.
Tram, W. H .....Cedar Grove.
Trudel, T .....St Prosper, Que.
Turenne, Delphis ....St. Paul L'Ermite, Q.

Wells & Sons, A. C...Chilliwack, B.C.
Whittaker & Son, H.J.North Williamsburg.
Wilson, J. Lockie....Alexandria.
Wood, And.....Vankleek Hill.
Wooddisse Bros.....Rothsay.
Wooley J. H.....Simcoe.
Wood, J. Walter.....Short Hills, N.J.
Wright, Herbert.....Guelph.
Watt, John .....Allan's Corners, Que.
Willoughby,Mrs.H.G.Saskatoon, Sask.

Yates, Mahon.....Athens.
Yuill, Jos .....Carleton Place
Youmans, Jas. A ....Red Deer, Alta.

PRIZE WINNING AYRSHIRES AT THE DOMINION INDUSTRIAL EXHIBITION, TORONTO, 1903.

Bull, 3 years old and upwards.

1st, Black Prince of Whitehill (imp.) —12208— dark brown and white ; calved April, 1899 ; bred by Robt. Woodburn, Jr., Whitehill, Galton, Scotland ; exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Prince Robert of Holehouse (4021); dam Nora 2nd of Holehouse (9725).

2nd, Hover-a-Blink —9806— white, with red markings ; calved August 5th, 1898 ; bred and exhibited by Wm. Stewart & Son, Menie, Ont.; sire Dainty Lad of Elm Shade —2245—; dam Jean Armour —2058—.

3rd, Prince of Barcheskie (imp.) —1050— white and brown ; calved February 6th, 1894 ; bred by A. Mitchell, Barcheskie, Scotland ; exhibited by A. Hume & Co., Menie, Ont.; sire Norseman of Balmaugan (3055); dam Eva of B. —2505—.

4th, A1 of Dentonia (imp.) —13667— white, dark spots on head and neck ; calved January, 1900 ; bred by Robert Young, Knockrioch, Campbellton, Scotland ; exhibited by Mrs. W. E. H. Massey, Coleman, Ont.; sire Ben d'Or of Hillhouse (4124); dam Dandy of Knockrioch.

Bull, 2 years old

1st, Lessnessock King of Beauty (imp.) —16768— white ; calved March, 1901 ; bred by T. W. & R. A. Lindsay, Carsegowan, Wigtown, Scotland ; exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire Mischief Still of Borrowmoss (4332); dam Queen of Beauty of Carsegowan.

2nd, Howie's Fizzaway —16721— white, with dark spots on head and neck ; calved April, 1901 ; bred by Jas. Howie, Hillhouse, Scotland ; exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Prince Imperial of Netherhall (3830); dam Blossom 3rd of Netherhall (10209).

3rd, Polar Star —16118— white and red ; calved June 20th, 1901 ; bred by Kains Bros., Byron, Ont.; exhibited by W. M. Smith, Scotland, Ont.; sire Sir William Wallace —2032—; dam Flossy 2nd —2299—.

4th, White Baron —16397— mostly white ; calved May 20th, 1901 ; bred by Wm. Kydd, Petite Cote, Que.; exhibited by R. Reford, Ste. Anne de Bellevue, Que.; sire Sir William of Robertland 8067 ; dam Cynthia of Rosebrae —10062—.

Bull, 1 year old

1st, Lessnessock Royal Star (imp.)—16872—(5357) white ; calved April, 1902 ; bred by R. Montgomerie, Lessnessock, Scotland; exhibited by A. Hume & Co., Menie, Ont.; sire Rare Style of Saturland (3905); dam Nellie of Westown.

2nd, First Choice of Glenora —14950— white and brown spots ; calved August 20th, 1901 ; bred by W. W. Ogilvie, Lachine Rapids, Que.; exhibited by Robt. Hunter, Maxville, Ont.; sire Douglasdale of Dam of Aber (imp.) —12212— (3954); dam Edith of Lessnessock (imp.) —9166— (11782).

3rd, Glencairn 4th of Ste. Anne's —14896— white, black cheeks ; calved August 20th, 1901 ; bred and exhibited by Robert Reford, Ste. Anne de Bellevue, Que.; sire Glencairn 3rd (imp.) 6955 ; dam Mayflower 24th of Barcheskie (imp.) —12290—.

4th, Rob Roy —14584— white and red ; calved February 23rd, 1902 ; bred by Kains Bros., Byron, Ont.; exhibited by Wm. Stewart & Son, Menie, Ont.; sire Kitchener —12215—; dam Edna —2666—.

Bull Calf, under 1 year

1st, Sensation of Glenora —16739— white and brown ; calved August 9th, 1902 ; bred and exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Douglasdale of Dam of Aber (imp.) —12212— (3954); dam Minnie of Lessnessock (imp.) —9176— (11787).

2nd, Lord Lionel —16886— mostly white ; calved August 3rd, 1902 ; bred and exhibited by Alex. Hume & Co., Menie, Ont.; sire Prince of Barcheskie (imp.) —1656—; dam Little Love —10488—.

3rd, Heather Lee —16919— nearly white, with red spots ; calved August 4th, 1902 ; bred and exhibited by Wm. Stewart & Son, Menie, Ont.; sire White Prince 2nd (imp. in dam) —808—; dam Lady Ottawa —3001—.

4th, Minto of Woodroffe —16565— white, with red about head and neck ; calved November 4th, 1902 ; bred and exhibited by J. G. Clark, Ottawa, Ont.; sire Comrade's Heir of Glenora ; dam Minnie Clyde —10250—.

Bull Calf, calved after January 1st, 1903

1st, Right Away of Ste. Anne's —16927— white, with red cheeks ; calved March 7th, 1903 ; bred and exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Glencairn 3rd (imp.) —6955—; dam Flora's Lady (imp.) —12280—.

2nd, Chum of Springhill —16733— white, with red spots ; calved January 7th, 1903 ; bred and exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire Glenora Mint —10789—; dam White Rose of Springhill —11518—.

3rd, Aberdeen —16917— red and white ; calved May 6th, 1903 ; bred and exhibited by Wm. Stewart & Son, Menie, Ont.; sire Lord Roberts —11553—; dam Primrose (imp.) —1205—.

4th, Topman of Woodroffe ; bred and exhibited by J. G. Clark, Ottawa, Ont.; sire Comrade's Heir of Glenora —11996—; dam Topsy Belle —14090—.

Bull, any age

1st, Black Prince of Whitehill (imp.) —12208—; exhibited by W. W. Ogilvie, Lachine Rapids, Que.

Cow, 4 years old and upwards

1st, Blue Bell of Hillhouse —12287— (imp.); calved May, 1898; bred by J. Howie, Hillhouse, Scotland; exhibited by Robert Reford, Ste. Anne de Bellevue, Que.; sire Traveller's Heir of Hillhouse (2903); dam Blue Bell of Hillhouse (Vol. 22, p. 328 S.).

2nd, Garclaugh Queen of the Soncies (imp.) —16765— white; calved March 1st, 1899; bred by A. M. Baird, Garclaugh, Scotland; exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire Garclaugh Salisbury (5134); dam Garclaugh Soncy (Vol. 26).

3rd, Aunt Sally of Ste. Anne's 9370, white and brown spots; calved September 6th, 1897; bred by D. McFarlane, Kelso, Que.; exhibited by Robert Reford, Ste. Anne de Bellevue, Que.; sire Uncle Sam of Trout River 6974; dam Lady Stirling 3rd 6230.

4th, Little Love —10488—; calved March 15th, 1899; bred and exhibited by A. Hume & Co., Menie, Ont.; sire White Chief of Ste. Anne's —2086—; dam White Queen —2674—.

Cow, 3 years old

1st, Lost Chord of Dentonia —13670— (13961) (imp.), white with brown spots; calved March, 1900; bred by Jas. Howie, Hillhouse, Kilmarnock, Scotland; exhibited by Mrs. W. E. H. Massey, Coleman, Ont.; sire Traveller's Heir of Holehouse (2903); dam Maud S. of Hillhouse (10402).

2nd, Silver Pet of Woodroffe —13039— white, with red cheeks; calved November 13th, 1899; bred and exhibited by J. G. Clark, Ottawa, Ont.; sire Glencairn of Maple Grove (imp. in dam) —6973—; dam Pansy of Woodroffe —3435—.

3rd, Kirkland Sparrow (imp.) —16766— dark brown and white; calved March, 1900; bred by G. B. Meikle, Kirkland, Kirkconnel, Scotland; exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire Tower Peter (5065); dam Kirkland Stonechat (Vol. 26).

4th, Littleton Mary (imp.) —16726— (16152), blackish brown with white markings; calved August, 1899; bred by Wm. Dow, Littleton, Girvan, Scotland; exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Royal Standard of Merkland (Vol. 21 S.); dam Fly of Merkland (12126).

Cow, dry, in calf, any age

1st, White Prim of Ste. Anne's —13145— white, red cheeks; calved April 29th, 1900; bred and exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Glencairn 3rd (imp.) 6955; dam Prim of Ste. Anne's (imp.) —10744—.

2nd, Dewdrop of Springhill —11513— red, with little white; calved August 27th, 1899; bred and exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire Rapid's Wonder —9744—; dam Snowdrop of Lancaster 5861.

3rd, Lady Ottawa —3001— white, with red markings; calved September 22nd, 1895; bred and exhibited by W. Stewart & Son, Menie, Ont.; sire Dundonald —1718—; dam Jean Armour —2058—.

Heifer, 2 years old

1st, Lessnessock Stylish Alice (imp.) —16771— (16165), white; calved April, 1901; bred by R. Montgomerie, Lessnessock, Scotland; exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire Rare Style of Saturland (3905); dam White Alice of Lessnessock (11009).

2nd, Lessnessock Queen of Bloom (imp.) —16769— white; calved March, 1901; bred by R. Montgomerie, Lessnessock, Scotland; exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire General Blucher of Lessnessock (4076); dam Bloomer of Lessnessock (11778).

3rd, Bessie of Warkworth —14175— white, with red spots; calved November 28th, 1900; bred by J. H. Douglas, Warkworth, Ont.; exhibited by Wm. Stewart & Son, Menie, Ont.; sire White Prince 2nd (imp.) —808—; dam Queen May —2815—.

4th, Princess of Ste. Anne's —13138— white, with red cheeks; calved September 2nd, 1900; bred and exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Glencairn 3rd (imp.) 6955; dam Anne of Barcheskie (imp.) 5357.

Heifer, 2 years old, out of milk

1st, Lessnessock Stylish Betty (imp.) —16772— (16166), white; calved April, 1902; bred by R. Montgomerie, Lessnessock, Scotland; exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire Rare Style of Saturland (1894); dam Betty of Lessnessock (11781).

2nd, Nelly Osborne 4th of Ste. Anne's —41901— white, with red spots on head; calved August 20th, 1901; bred and exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Glencairn 3rd (imp.) 6955; dam Nelly Osborne 3rd —10010—.

3rd, Lady's Princess of Menie —14603— white, with brown spots; calved March 1st, 1902; bred and exhibited by Alex. Hume & Co., Menie, Ont.; sire Prince of Barcheskie (imp. in dam) —1656—; dam Lady's Maid —3352—.

4th, Princess Alexandria —17087— nearly white; calved February 24th, 1902; bred and exhibited by A. Hume & Co., Menie, Ont.; sire Prince of Barcheskie (imp.) —1656—; dam Snowflake —3233—.

Heifer Calf, under 1 year old

1st, Dorothy of Glenora —16735— white and brown on neck; calved October 20th, 1902; bred by W. W. Ogilvie, Lachine Rapids, Que.; exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire Douglasdale of Dam of Aber (imp.) —12212—; dam Georgina 2nd of Wynholme (imp.) —9168— (11777).

2nd, Flossie of Woodroffe —16562— mostly white; calved September 5th, 1902; bred and exhibited by J. G. Clark, Ottawa; sire Comrade's Heir of Garlaff (imp.) —9183—; dam White Floss of South Brant —10096—.

3rd, Dairyman's Pride —16918— red and white; calved August 10th, 1902; bred and exhibited by Wm. Stewart & Son, Menie, Ont.; sire Hover-a-Blink —9806—; dam Moss Rose —2605—.

4th, Stately 2nd of Ste. Anne's —16151— light red and white; calved August 29th, 1902; bred and exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Lord Dudley of Drumsuie (imp.) —12293— (3945); dam Stately 1st of Balmangan (imp.) —12282—.

Heifer Calf, calved after January 1st, 1903

1st, Little Marion (imp.) —15725— (16151), white, with red cheeks and neck; calved March, 1903; bred by W. Dow, Littleton, Girvan, Scotland; exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Prince Alexander of Markland (4284); dam Canty of Merkland (11313).

2nd, Mistletoe —16979— nearly white; calved April 1st, 1903; bred and exhibited by Alex. Hume & Co., Menie, Ont.; sire Prince of Barcheskie (imp.) —1656—; dam Flora Macdonald —16977—.

3rd, Nellie's Jewel —16871— white, with brown spots; calved April 17th, 1903; bred and exhibited by Alex. Hume & Co., Menie, Ont.; Prince of Barcheskie (imp.) —1656—; dam Bell of Parkhill —2091—.

4th, White Heather —16978— nearly white; calved April 14th, 1903; bred and exhibited by Alex. Hume & Co., Menie, Ont.; sire Prince of Barcheskie (imp.) —1656—; dam Bonnie's Pride —16885—.

Four Animals, the progeny of one bull, all bred and owned by exhibitor

1st, Exhibitor, R. Reford, Ste. Anne de Bellevue, Que.
2nd, " A. Hume & Co., Menie, Ont.
3rd, " R. Reford, Ste. Anne de Bellevue, Que.
4th, " W. Stewart & Sons, Menie, Ont.

Herd of 1 Bull and 3 Heifers, under 2 years old, the heifers to have been bred by exhibitor, and all to be owned by him

1st, Exhibitor, A. Hume & Co., Menie, Ont.
2nd, " R. Reford, Ste. Anne de Bellevue, Que.
3rd, " J. G. Clark, Ottawa, Ont.
4th, " W. Stewart & Sons, Menie, Ont.

Herd of 1 Bull, any age, 2 Females over 3 years old, 1 Female over 2 and under 3, 1 Female over 1 and under 2, and 1 Female under 1 year, all owned by exhibitor

1st, Exhibitor, R. Reford, Ste. Anne de Bellevue, Que.
2nd, " R. Hunter & Sons, Maxville, Ont.
3rd, " R. Reford, Ste. Anne de Bellevue, Que.
4th, " W. Stewart & Sons, Menie, Ont.

Female, any age

1st, Lost Chord of Dentonia (imp.) —13670— (13961); exhibited by Mrs. W. E. H. Massey, Coleman, Ont.

Canadian Hereford Breeders' Association

ANNUAL MEETING.

The thirteenth annual meeting of the Canadian Hereford Breeders' Association was held at the Royal Hotel, Guelph, on December 9th, 1903. In the absence of the President, W. H. Hunter, the Vice-President, R. J. Mackie, of Oshawa, took the chair.

REPORT OF THE SECRETARY-TREASURER.

As promoters of the breed shows, as founders of the movement which has resulted in establishing permanent Stock Expositions and sales, at Kansas City and at Chicago, Hereford breeders of the United States feel in duty bound to keep up the standard of their herds. Their shows have been excellent, and their sales, although in common with other breeds, not reaching the average of former years, have been healthy.

At a combination show and sale at Indianapolis on September 15th the bull Columbus 10th sold for $600, and the cow Armel sold for $400. At the Kansas City sale in January, our President purchased several at substantial prices and at the combination at Wabash, Ind., cows averaged $243 and bulls $147. Sales have also been good in Canada.

We have cattle enough and good breeders enough to follow in their footsteps, but while our American cousins are united and stand by their Herd Book, enabling them to collect sufficient funds to give large prizes and engage in the battle of the breeds, we are decidedly lacking in these respects. If all Canadian Hereford breeders put their shoulders together and decide to record their cattle in their own book, it would probably be but a short time before they had sufficient money to offer prizes large enough to induce exhibitors to show cattle equal to those which have beaten other beef breeds so often in the United States.

The show and sales at the last international were very successful and the quality of the animals better than usual.

We have recorded 385 pedigrees and 477 transfers during the last year, and we have at present 329 males and about 383 females, or a total of 712 pedigrees for our Third Volume of the Canadian Hereford Herd Book.

Our members were made members of the Cattle Breeders' Association by the payment of $28, this money being added to the prizes given at the Winter Fair

FINANCIAL STATEMENT, 1903.

Receipts.

Cash on hand	$247 17
Registration fees to date	426 90
61 members	122 00
1 Herd Book	2 00
Total	$798 07

Expenditures.

Commission on 385 pedigrees at 35c	$134 75	
Commission on 477 transfers at 10c	47 70	$182 45
Cash, Cattle Breeders' Association		28 00
Postage and telegrams		15.36
Printing and stationery		15 35
Auditor, stenographer and proofreader		38 00
Balance on hand		518 91
Total		$798 07

HENRY WADE, Secretary-Treasurer.

RESOLUTIONS.

The following resolutions were passed :

That the members of the Canadian Hereford Breeders' Association be made members of the Dominion Cattle Breeders' Association on the same terms as last year.

That we, the members of the Canadian Hereford Breeders' Association, at this, our annual meeting, do express our regret at the action of the St. Louis Fair Board in not recognizing the Stud and Herd Books of Canada. We, as a Dominion, have been a large link in the chain of conveyance of pure bred stock between Great Britain and the United States, and having a careful and well edited set of Canadian Herd Books, we hope that the St. Louis Fair Board will rescind and amend their rules, as we are informed on good authority they intended to do.

That the thanks of the members of this Association be tendered our Secretary and Editor and officers of this Association for the able manner in which the affairs of this Association have been looked after during the past year.

That we, the members of this Association, now in session, object very strongly to the present United States Treasury Department ruling in preventing Canadian breeders from selling Canadian cattle in the United States, and especially at the St. Louis Exhibition, where they would have to return them to Canada before they would be delivered to the purchasers free of duty.

That $150 be voted to the Industrial Exhibition, 1904, on the following conditions : that the animals competing be all recorded in the Canadian Hereford Herd Book.

Junior Herd. One bull under two years, two heifers one year and under two, two heifers under one year. First prize, $30 ; second prize, $20 ; third prize, $10.

Female grand champion, $25 ; bull grand champion, $25.

Best four calves bred and owned by exhibitor, $20.

Best three animals, the get of one bull, owned by exhibitor, $20.

The sum of $25 was voted to the Winnipeg Exhibition for prizes for Hereford cattle to to be recorded in the Canadian Hereford Herd Book.

The sum of $25 was voted to the Calgary Exhibition for prizes for Hereford cattle to be recorded in the Canadian Hereford Herd Book.

The following are the delegates to the National Live Stock Convention :—W. H. Hunter, President, "The Maples;" R. J. Mackie, Vice President, Oshawa ; Henry Wade, Secretary, Toronto.

EXHIBITIONS.

A list of winners at the different exhibitions throughout Canada will appear in our printed report, which will be mailed to all the members. It will include the following exhibitions :—

1903.

Winnipeg, Man.	Charlottetown, P.E.I.	McLeod, Alta.
Halifax, N.S.	Fredericton, N.B.	Okctokes, Alta.
Lacombe, Alta.	London, Ont.	Maple Creek, Assa.
Toronto, Ont.	Ottawa, Ont.	Lethbridge, Alta.
Regina, Assa.	New Westminster, B.C.	Medicine Hat, Assa.
Brandon, Man.	Victoria, B.C.	Birtle, Man.

Southern Manitoba Fair, Killarney.

OFFICERS, 1904.

President—W. H. Hunter, "The Maples."

Vice-President—R. J. Mackie, Oshawa.

Vice-Presidents for the Provinces:

Quebec—H. D. Smith, Compton, Que.
Nova Scotia—W. W. Black, Amherst, N.S.
New Brunswick—H. B. Hall, Gagetown, N.B.
British Columbia—J. L. McKay, Sinclair, B.C.
Assiniboia—R. Swinton, Regina, Assa.
Alberta—C. Palmer, Lacombe, Alta.
Manitoba—J. Sharman, Rossburn, Man.
Ontario—J. A. McDermid, Stayner, Ont.

Directors:

James Wallace, Cartwright, Man.	T. H. Reid, Holstein.	H. Reid, Mimosa.
R. W. Reid, Forest.	M. O'Neil, Southgate.	M. Boyd, Bobcaygeon.
A. Stone, Guelph.	A. Warnick, Painswick.	W. K. Gooding, Guelph.
	W. H. Hammell, Beaton.	F. M. Copeland, Harriston.

Delegates to the different Exhibitions:

Winnipeg Exhibition—J. A. Chapman, Beresford, Man.
Ottawa Exhibition—H. Wade, Toronto.
Winter Fair, Guelph—W. K. Gooding and A. Stone.
Maritime Winter Fair, Amherst, N.S.—W. W. Black, Amherst, N.S.
London Exhibition—A. O'Neill and R. M. Stutt.
Toronto Exhibition—W. H. Hunter and H. Wade.
Calgary Exhibition—J. T. Parker, Lethbridge, Alta.

Secretary-Treasurer and Editor—H. Wade, Toronto, Can.

PRIZE WINNING HEREFORDS AT THE DOMINION INDUSTRIAL EXHIBISION, TORONTO, 1903.

Bull, 3 years old and upwards

1st, Spartacus —1716—; calved October 21, 1899; bred by Gudgell & Simpson, Independence, Mo.; exhibited by W. H. Hunter, The Maples, Orangeville; sire Lamplighter —1532—; dam Sprite 6th —2128—.

2nd, Baronet —1292—; calved January 13, 1898; bred by A. P. Turner, Pembridge, Hereford, Eng.; exhibited by the F. W. Stone Stock Co., Guelph; sire Statesman (14938); dam Cordelia 84152a.

Bull, 1 year old

1st, Diplomacy; bred and exhibited by W. H. Hunter, The Maples; sire Pluto 138434; dam Pearl Barley 138238.

Bull Calf, under 1 year

1st, Orion —1745—; calved September 10, 1902; bred and exhibited by W. H. Hunter, The Maples; sire March On 2nd —1470—; dam Brenda 3rd —1667—.

2nd, Prince Charming —1979—; calved November 3, 1902; bred and exhibited by F. W. Stone Stock Co., Guelph; sire Stone's Clarence 2nd (imp. in dam) —1713—; dam Peach 36th —2413—.

3rd, Marksman —1908—; bred and exhibited by W. H. Hunter, The Maples; sire Young Actor —1250—; dam Bessie H. —1818—.

Bull, any age

1st, Spartacus —1716—; exhibited by W. H. Hunter, The Maples.

Cow, 4 years old and upwards

1st, Hazel —1533— (138532); calved June 7, 1899; bred by A. S. Hunter, Durham; exhibited by W. H. Hunter, The Maples; sire Likely Lad —578—; dam Hazel Duchess 6th —1393—.

2nd, Peach 34th —2412—95240—; calved December 25, 1898; bred by F. W. Stone, Guelph; exhibited by The F. W. Stone Stock Co., Guelph; sire Barbette —1290—; dam Peach 28th 63844.

3rd, Buttermaid 2nd (imp.) —2123—; calved July 10, 1899; bred by W. T. Barnaby, Bromyard, Eng.; imported by E. B. Armour, Chicago; exhibited by W. H. Hunter, The Maples; sire Happy Hampton (16097); dam Buttermaker 138044.

Cow, 3 years old

1st, Sunflower (imp.) —2126—; calved January 19, 1900; bred by Her Majesty the late Queen Victoria; exhibited by W. H. Hunter, The Maples; sire Marshall (20187); dam Spicy.

2nd, Peach 36th —2413— 109047; bred and exhibited by The F. W. Stone Stock Co., Guelph; sire Lord of Ingleside 4th —1295—; dam Peach 28th 63844.

Heifer, 2 years old

1st, Sweetheart 34th —2417—121507—; bred and exhibited by The F. W. Stone Stock Co., Guelph; sire Baronet —1292—; dam Sweetheart 33rd —2120—.

2nd, Daylight 138245; bred and exhibited by W. H. Hunter, The Maples; sire Fine Lad 111806; dam Dahlia 138243.

Heifer, 1 year old

1st, Sunbeam —2175—; calved July 29, 1902; bred by C. W. Armour, Kansas City, Mo.; exhibited by W. H. Hunter, The Maples; sire Pluto (imp.) —1756—; dam Sunflower (imp.) —2126—.

2nd, Sweet Bar —2418— 137338; bred and exhibited by The F. W. Stone Stock Co., Guelph; sire Baronet (imp.) —1292—; dam Sweetheart 33rd —2125—.

3rd, Coquette 136168; bred and exhibited by W. H. Hunter, The Maples; sire Keep On —1564—; dam Charmer 26259.

Heifer Calf, under one year

1st, Peachstone C. —2415—; calved October 14, 1902; bred and exhibited by F. W. Stone Stock Co., Guelph; sire Stone's Clarence 2nd (imp. in dam) —1713—; dam Peach 34th —2412—.

2nd, Andromeda —2164—; calved November 1, 1902; bred and exhibited by W. H. Hunter, The Maples; sire Young Actor —1250—; dam Brenda 4th —1668—.

3rd, Maple Beauty —2168—; calved September 20, 1902; bred and exhibited by W. H. Hunter, The Maples; sire March On 2nd —1470—; dam Brenda 5th —1669—.

Herd of 1 Bull and 4 Females, over 1 year old

1st, W. H. Hunter, The Maples.
2nd, F. W. Stone Stock Co., Guelph.
3rd, W. H. Hunter, The Maples.

Female, any age

1st, Sweetheart 34th —2417—; exhibitor, F. W. Stone Stock Co., Guelph.

Canadian Hackney Horse Society

ANNUAL MEETING.

The following are the minutes of the twelfth annual meeting of the Hackney Horse Society, held in the Rossin House, Toronto, February 3rd, 1904, 2 p.m.. The Second Vive-President, E. C. H. Tisdale, was in the chair.

The minutes of the last annual meeting were taken as read.

The Secretary-Treasurer then presented his twelfth annual report and financial statement, as given below, and on motion they were adopted.

REPORT OF THE SECRETARY-TREASURER.

FINANCIAL STATEMENT.

For the Year Ending December 31st, 1903.

Receipts.		Expenditure.		
Balance from 1902..	$395.43	Stationery, postage and sundries.....		$ 28.37
21 members at $5	105.00	Prizes and cups		125.00
Registration fees to date	209.50	Auditor and stenographer..		10.00
		Committee expenses		9.00
		Commissions on—		
		93 peds. at 35 cts	$32.55	
		8 trans. at 15 cts	1.20	
				33.75
		Balance on hand		503.81
	$709.93			$709.93

HENRY WADE, Secretary-Treasurer.

We have recorded 93 pedigrees this year, and have made 8 transfers ; this is 27 more than in 1902, showing that the Hackney interest is advancing steadily. We have commenced the publication of the First Volume, and we hope to have it completed shortly.

The original Constitution and Standard was destroyed at the fire in 1894, so a committee was appointed at the last Directors' meeting to formulate a new one. The standard recommended is somewhat higher than the one under which we have been working. This Standard and the Constitution will be submitted at this meeting.

We have 21 paid members this year ; fee, $5 per annum. If the $3 rate is adopted

The folling ar the minutes of the twelfth annual meeting of the Hackney Horse

we may expect a much larger membership roll.

Fifty dollars was contributed to the Canadian Horse Show, fifty dollars to the Industrial, and twenty-five dollars for a cup for the Calgary Exhibition; total, $125. Hackneys have been well represented at the principal exhibitions, and still make the best display of any class of horses on the line in the show rings.

I hereby certify that I have examined the books of the Canadian Hackney Horse Society, and the above statement is correct and in accordance therewith.

Toronto, Jan. 20th, 1904.

CHAS. F COMPLIN, Auditor

OFFICERS FOR 1904.

President—Thomas Graham, Claremont.

1st Vice-President—E. C. Attrill, Goderich.

2nd Vice-President—E. C. H. Tisdale, Beaverton.

Vice-Presidents for the Provinces:

Ontario—R. W. Davies, Toronto.
Quebec—Robert Ness, Howick, Que.
Alberta—A. M. Rawlinson, Calgary.
Manitoba—J. A. S. McMillan, Brandon.
New Brunswick, F. E. Came, St. Andrews.
Nova Scotia—Hon. T. R. Black, Amherst.
P.E. Island—John Richards, Bideford.
British Columbia—D. Tolmie, Victoria.

Directors:

Robert Miller, Stouffville.
Dr. Smith, Toronto.
Robert Bond, Toronto.
Geo. Pepper, Toronto.
Robert Beith, M.P., Bowmanville.
W. L. Spark, Ottawa.
H. M. Robinson, Toronto.
Robert Graham, Claremont.
H. N. Crossley, Toronto.

Delegates to Fairs and Associations:

Industrial—Thos. Graham and E. C. H. Tisdale.
Western Fair—E. C. Attrill and L. L. Pound, Glen Colin.
Ottawa Central Fair and Ottawa Spring Horse Show—Robert Beith, M. P., and Robert Miller.
Montreal Spring Horse Show—F. E. Came and Robert Ness.
Woodbridge Fair—R. W. Davies and Robert Bond.
Horse Breeders' Association—Thos. Graham and E. C. H. Tisdale.
Spring Horse Show, Toronto—H. M. Robinson.

Auditor—C. F. Complin, London.

Secretary-Treasurer—H. Wade, Parliament Buildings, Toronto.

On motion it was resolved: "That the annual membership fee of this Society be changed from $5.00 to $3.00."

The Constitution and By-Laws and the Standard were then read.

CONSTITUTION OF THE CANADIAN HACKNEY HORSE SOCIETY.

The name of this Society shall be the Canadian Hackney Horse Society.

The objects for which this Society is established are:

(a) To improve the breed and promote the breeding of Hackneys and Hackney-bred ponies.

(b) To compile and publish a Stud Book of such horses.

(c) To purchase, take on lease, hire and otherwise acquire for the Society, houses, lands, goods, chattels and effects, and to sell, let, and otherwise dispose of the same.

(d) To hold shows for such horses, and to offer prizes, and to do all such other lawful things as may be incidental or conducive to the attainment of the above objects or any of them.

The income and property of the Society, from whatever source derived, shall be applied solely towards the promotion of the objects of the Society, as set forth in this Constitution, and no portion thereof shall be paid or transferred, directly or in-

directly, by way of dividend, bonus or otherwise, howsoever, by way of profit, to the members of the Society or to any of them. Provided that nothing herein contained shall prevent the payment in good faith of remuneration to any Treasurer, Secretary, Editor, Director, Officer, Inspector, Clerk, or Servant of the Society, or to any member of the Society, or to any other person, in return for any services actually rendered to the Society.

If, upon the winding up or dissolution of the Society, there remains, after the satisfaction of all its debts and liabilities, any property whatsoever, the same will not be paid to or distributed among the members of the Society, but shall be given or transferred to some other institution or institutions having objects similar to the objects of this Society, to be determined by the members of the Society at or before the time of dissolution.

The Officers of the Society shall be a Board of Directors, consisting of nine members of the Society, elected by the members annually, from which shall be elected a President, First Vice-President and Second Vice-President. There shall also be a Secretary and Treasurer elected by the Board from their own members, or from the members of the Society, whose term of office shall be during pleasure.

An Executive Committee, consisting of the President (ex-officio) and three Directors shall be elected at the annual meeting.

The appointment of Inspectors in all cases must be made by the Board of Directors. All appointments of delegates to the different Exhibition Boards must be made at the annual meeting.

Annual dues shall be $3.00 per annum, payable in advance, on the first day of January each year. If such dues are not paid on or before the first day of January, the member shall be considered in arrears, and for non-payment after May 1st he shall cease to be a member.

The President shall preside at the meetings of the Society or Board of Directors. In the event of his absence, and also the Vice-Presidents, a meeting of the Society or Directors may elect its presiding officer. The President shall, with the Secretary, sign all written contracts and obligations of the Society, and shall perform all such other duties as the Board of Directors of the Society may assign.

The First Vice-President, or in his absence the Second Vice-President, shall, in the absence of the President, preside at the meetings of the Society or Board of Directors.

The Secretary shall be responsible to the Board of Directors for the discharge of the various duties they require him to perform. He shall attend all the meetings of the Society. He shall also attend on any Committee when not in attendance on the Board. He shall take the minutes of the Board, and also when attending on any committee, the minutes of such committee, unless relieved of such duties by the Chairman. He shall conduct the correspondence of the Society, preserving the letters he may receive in a classified arrangement, and he shall keep a daily register of correspondence in a classified form. He shall keep letter books, in which shall be entered copies of all letters which he writes on the business of the Society.

The Secretary shall be responsible for all moneys recived by him on behalf of the Society, and shall forthwith pay such sums into the Society's banking account. He shall have the charge of the expenditure of petty cash.

The Secretary shall have the custody of all books and papers belonging to the Society. All books, papers and letters sent to the Society shall be stamped at once with the Society's stamp.

The Secretary shall have the immediate superintendence over the clerks and servants of the Society; and he shall report any misconduct on their part to the Board.

The Board of Directors, subject to the Control of the Society, as determined by a general meeting of the members of the Society, shall exercise all powers and perform

all the duties of the Society, and shall have power to do all such things as may be incidental or conducive to other attainment of the objects of the Society mentioned in the Constitution.

The Directors may from time to time regulate the nature, from the contents of, and also the terms and conditions as to the entries in, and also the time and mode and terms of issue of any publication of the Society, and all arrangements and details connected therewith, and in particular they shall have power (so far as they may not be fettered by any subsisting contract or engagement), from time to time to fix and alter the price of any publication of the Society, and the charges to be levied for the insertion therein of entries relating to Hackney horses and other matters.

Any member who shall fail in the observance of any rule, regulation, or by-law, made by the Board of Directors, or whose conduct in any respect shall be, in the opinion of the Board, derogatory to the character or prejudicial to the interests of the Society, may be removed from the Society by a resolution to that effect, passed by a majority of at least two-thirds of the members of the Society present, and voting at a special or regular Board meeting, of which not less than twenty-one days' previous notice, specifying the intention to propose such resolution, shall have been sent to all members of the Society.

The quorum at any Directors' or special meeting of the Society shall be five.

The Constitution may be amended at any meeting of the Society, annual or special, by a vote of two-thirds of the members present. Notices of proposed amendment shall be mailed to each member, with notice calling the meeting.

The Board of Directors shall give at least ten days' notice in writing to each member of the call for a general meeting; the time to date from the mailing of such notice.

The Board of Directors shall have the power to arrange the annual dues, initiation and registration fees from time to time, as they may see fit. They may from time to time appoint, employ and remove Secretaries, or other paid officers of the Society. They shall have control and direction of the expenditures of the funds of the Society.

All cases of suspected or doubtful pedigrees of horses, and all cases of alleged misrepresentation relating to them, which may be brought under the notice of the Society, shall be dealt with by the Board of Directors, and their decision shall be final.

All cases of disputes or questions, referred to the Society for arbitrament and settlement, shall be dealt with by the Board of Directors as they may see fit.

The Board of Directors shall not be required to undertake the arbitrament or settlement of any dispute or question, unless both the parties to such dispute or question be members of the Society, nor unless both parties give satisfactory assurance to the Board of Directors that they will be bound by the decision of the Board of Directors as final.

QUALIFICATION OF ENTRY FOR STALLIONS AND MARES FOR THE CANADIAN HACKNEY STUD BOOK.

Section 1.—For Registration of Imported Horses.

All horses "registered" or "entered" in English Hackney Stud Book shall be eligible for record in the corresponding classes in the Canadian Hackney Stud Book, namely:

(a) Horses "registered" in the English Stud Book shall be eligible for "full registry" in the Canadian Stud Book.

(b) Horses "entered" in the English Stud Book shall be eligible for "half registry" in the Canadian Stud Book.

(c) Mares recorded as "Inspected" in the English Stud Book shall be eligible for record in the list of "Inspected Mares" in the Canadian Stud Book.

Exception.—Stallions "entered" in the English Stud Book, and imported after October 1st, 1891, shall not be eligible for record in the Canadian Stud Book.

Section 2.—For Registration of Horses Bred in Canada or the United States.

(1) A stallion shall only be recorded in the "full registry" class, and to be eligible must be out of a "full registered" dam, and either by a "full registered" sire, or by an English "entered" sire imported prior to October 1st, 1891, and "half registered" in the Canadian Hackney Stud Book.

(2) A mare by a "full registered" stallion, and out of either a "full registered" or "half registered" dam, shall be eligible fer "full registry."

(3) A mare by a "full registered" stallion, and out of an inspected mare, shall be eligible for "half registry."

(4) A mare by an English "entered" stallion imported prior to October 1st, 1891, and "half registered" in Canadian Stud Book, out of either a "full registered" or "half registered" dam, shall be eligible for "full registry," and if out of an "inspected" dam shall be eligible for "half registry."

(5) A mare by a "full registered" stallion, out of an uninspected mare may be inspected, and, if passed, shall be eligible for "half registry."

Half registered animals will be numbered, but their numbers will be in brackets with the words "half registered" also in brackets.

All horses fourteen-one and under shall be registered and classified as ponies.

All horses over fourteen-one shall be registered as Hackneys.

Inspection fees.—Mare or filly certified to be sired by a "full registered" Hackney stallion, and other mares not less than two years old, fee $15; $5 to accompany application (which amount will in no case be returned), difference to be paid before certificate is issued. The Society reserves the right to refuse to inspect any mare in the event of the expense exceeding fees, unless the applicant agrees to reimburse the Society.

The expression "horse" includes stallion and mare.

The name of any place may form part of a distinctive name of stallion or mare. In case the name given is in use or being claimed, the Secretary will furnish a name; and if, upon the receipt of the Certificate of Entry, the name should not be satisfactory to the applicant, the certificate must be returned at once for correction, accompanied by a list of names in the order of preference. Breeders may claim names in advance by sending them to the Secretary, who will notify them which of the names sent are not in use or claimed,and will reserve them for their future use; but no name can be caveated for a longer period than two years, unless it is reclaimed by the person who holds it.

The Application Form must be duly signed by the breeder. It will greatly facilitate the issue of the Stud Book if entries are made at once. If the animal was imported prior to July, 1888, the date English transfer system was inaugurated, the regular importation papers as sworn to before the Custom House authorities must accompany application, but if the animal was imported after July, 1888, the export certificate from the English Hackney Society must be forwarded with this application, and, after due inspection by the Secretary, will be returned to the owner with certificate of entry.

Color and Markings.—The general color must in every case be given, also where the white or black markings are—forehead, nose, fore and hind legs, above fetlock and below the knee, and coronet. When there are no markings on the animal, the general color will be stated with the word "solid" added.

N.B.—In regard to the above-named conditions of entry the Secretary reserves the right to reject the entry of any animal, if he is not satisfied that the pedigree as given is correct.

Membership fee, $3.00.

Registration fees to be paid for each animal: Members, $2; non-members, $3. Transfers, $1.

No application for registration will be recorded unless accompanied by the fee.

Entry forms (which are free) and all information and communications to be addressed to Henry Wade, Secretary, Toronto, Ont.

Amendments to Constitution and Standard.

Moved by Robert Miller, seconded by H. M. Robinson: "That the part of the Standard where it reads, 'All horses under fourteen hands high shall be registered and classified as ponies,' and, 'All horses fourteen hands and over shall be registered as Hackneys,' be amended to read as follows:

"'All horses fourteen-one and under shall be registered and classified as ponies.'

"'All horses over fourteen-one shall be registered as Hackneys.'" Carried.

Moved by Mr. Robert Beith, seconded by H. M. Robinson: "That the Standard as amended be adopted." Carried.

On motion it was resolved: "That article 15 of the Constitution read as follows: 'The quorum at any Directors' or special meeting of the Society shall be five.'"

The President, First and Second Vice-Presidents were elected by the meeting as heretofore, and on looking over the Constitution it was found that they should have been elected by the Board of Directors, so on motion it was resolved: "That article six be removed for this meeting from the articles of the Constitution, and an article covering and legalizing our action as just carried out in electing President and Vice-Presidents be placed in lieu of this article.

Moved by H. M. Robinson, seconded by Robert Bond: "That the Constitution as amended be adopted." Carried.

National Live Stock Association.

The plans for the formation of a National Live Stock Association was also explained, and on motion resolved: "That the Hackney Horse Society of Canada, in annual convention assembled, consider it desirable to establish a National Live Stock Association, and that we forthwith appoint delegates to same.

Delegates: Thos. Graham, Claremont, Ont.; Geo. Pepper, Toronto, Ont.; F. E. Came, St. Andrews, N.B. (or Montreal, Que.); Robt. Beith, M.P., Bowmanville.

LIST OF MEMBERS.

Attrill, E. C. ..... Goderich.
Bond, R. ..... Toronto.
Beith, M.P., Robert .... Bowmanville.
Crossley, H. N ..... Toronto.
Cochrane, L. W. ..... Crawfordsville, Ind.
Came, F. E. ..... Montreal.
Davies, Robert ..... Toronto.
Davies, R. W ..... Toronto.
Edwards, W. C. & Co. . Rockland.
Flora, Morris ..... Crawfordsville, Ind.
Graham Bros. ..... Claremont.
Graham, Thos. ..... Claremont.
Hodson, F. W. ..... Ottawa.
Irvine, Thos. ..... Winchester.
Miller, Robert ..... Stouffville.
Murray, J ..... Toronto.
McMillan, J. A. S ..... Brandon, Man.
McRae, C. L. ..... Beaverton.
Pepper, Geo. ..... Toronto.
Robinson, H. M ..... Toronto.
Shier, Wm ..... Cannington.
Spark, W. S. ..... Ottawa.
Smith, Dr. And ..... Toronto.

PRIZE WINNING HACKNEYS AT THE TORONTO INDUSTRIAL, 1903.

Stallion, 4 years old and upwards

1st, Cliffe Roberts (imp.) [167] (7404); dark chestnut, face and legs white, foaled 1898; bred by J. H. Hildridge, Carr Farm, North Cliffe, Eng.; exhibited by O. Sorby, Guelph; sire Forest King (5621); dam Cliffe Rose (5148), by Prince Alfred (1325).

2nd, Saxon [97] dark brown, star, off fore coronet and both hind heels white, foaled May 2, 1899; bred by Rawlinson Bros., Calgary, Alta.; exhibited by Graham Bros., Claremont; sire Robin Adair 2nd (imp.) [63] (3907); dam Fimber Pride (imp.)—64—(3798), by Charley Merrylegs 3rd (1734).

3rd, Pedro (imp.) [173] (7216) chestnut, star, foaled in 1898; bred by W. Bullough, The Rhyddings, Lancashire, Eng.; imported and exhibited by J. B. Hogate, Sarnia; sire Troubadour (1357); dam Maid O'Fashion (7054), by Skipsen Performer (1568).

Stallion, 2 years old

1st, Jubilee Performer [121] black, white on hind feet; foaled June, 1901; bred by O. Sorby, Guelph; exhibited by Lewin & Cox, Agents, Brantford; sire Jubilee Chief (imp.) [1]; dam Miss Baker [16] (4371), by Ruby (1342).

2nd, Storm King [130] brown, star and snip, off fore and hind legs white; foaled June, 1901; bred by Graham Bros., Claremont; exhibited by Hodgkinson & Tisdale, Beaverton; sire Lord Rosebery (imp.) [9] (1307); dam Trinket (imp.) [60] (873), by Fireaway (249).

3rd, Rosador Jr. (imp.) [171]; chestnut, small white ratch down face, four white fetlocks; foaled 1901; bred by W. H. F. Quintin, Rillington, Yorks, Eng.; exhibited by W. H. Maltby, Laurel; sire Rosador (4964); dam Lampston Sultana (15405), by Lord Derby 2nd (417).

Stallion, 1 year old

1st, Bay [158] strawberry roan, few white hairs in forehead, off fore foot white and pastern partly white; foaled 1902; bred and exhibited by Horace N. Crossley, Rosseau; sire Rosseau Performer (imp.) —34— (5391); dam —56— Rosseau Fililess, by Fireworks (imp.) —16— (3602).

2nd, Squire of Chester [143] dark bay roan, star, off fore ankle, nigh fore coronet and hind legs white; foaled June 18, 1902; bred and exhibited by Robert Davies, Toronto; sire Squire Rickell —74—; dam Danish Lady —129—, by Danish Duke —53—.

3rd, Robin's Duplex [149] chestnut, star; foaled June 13, 1902; bred by Rawlinson Bros., Calgary, Alta.; exhibited by O. Sorby, Guelph; sire Robin Adair 2nd (imp.) —63—(3907); dam Patience —231—, by Robin Adair 2nd (imp.) —63— (3907).

Stallion, any age

1st, Cliffe Roberts (imp.) [167] (7404); exhibitor, O. Sorby, Guelph, Ont.

Filly, 3 years old

1st, Queen of the Party —133— chestnut roan, stripe in face, off fore foot and hind legs white below joints; foaled April 12, 1900; bred and exhibited by H. N. Crossley, Rosseau; sire Rosseau Performer (imp.) —34— (5391); dam Lady Cocking (imp.) —11— (5530), by Royal George (683).

2nd, Miss Roseberry —211— chestnut, stripe in face; foaled June, 1900; bred and exhibited by Hodgkinson & Tisdale, Beaverton; sire Lord Rosebery —9— (1307); dam Nellie —46 F.S.—, by Paul.

Filly, 2 years old

1st, Maggie May —213— roan with star; foaled June, 1901; bred and exhibited by Hodgkinson & Tisdale, Beaverton; sire Rosseau Swell —71—; dam Nellie —46 F.S.—, by Paul.

2nd, Woodland's Queen —212— brown, star, white on off hind foot; foaled May 17, 1901; bred and exhibited by Dr. B. Gollop, Milton West; sire Woodland Performer —68—; dam Kate —192—, by Lord Bardolph (imp.) —32 (412).

Filly, 1 year old

1st, Rickell's Heiress —164— chestnut, hind feet and ankles white; foaled April 11, 1902; bred and exhibited by H. N. Crossley, Rosseau, Ont.; sire Squire Rickell —74— 264; dam Althorpe Countess (imp.)—20— (6357), by Enthorpe Performer (2973).

2nd, Jubilee Beauty —215— brown, star, near hind fetlock white; foaled June 7, 1902; bred and exhibited by O. Sorby, Guelph, Ont.; sire Jubilee Chief (imp.) —1— 108 (2122); dam Stella —74—, by Square Shot (imp.) —27— (3294).

3rd, Lady Rickell —165— light bay roan, few white hairs on forehead, hind ankles white; foaled June 28, 1902; bred and exhibited by Robt. Davies, Toronto; sire Squire Rickell —74—; dam Lady Lynn (imp.) —118—579—(2934), by Great Shot (329).

Brood Mare, with Foal of the same breed by her side

1st, Miss Baker (imp.) [16] (4371) brown, white feet; foaled 1889; bred by Jas. Case, Cockthorpe, Wells, Norfolk, Eng.; exhibited by O. Sorby, Guelph; sire Ruby (13422); dam Betsy Baker (1441), by Norfolk Jack (516).

2nd, Jubilee Daisy [186] brown, off hind coronet white; foaled 1898; bred and exhibited by J. W. Pound, Corinth; sire Jubilee Chief (imp.) —1— (2122); dam Fanny —44— F.S., by Sir Colin Campbell (imp.).

3rd, Trinkett (imp.) [60] (873) brown, star on forehead, tip on nose, little white on near hind foot; foaled 1881; bred by S. Lofthouse, Steeton Grange, Todcaster, Eng.; exhibited by Graham Bros., Claremont; sire Fireaway (249); dam Beauty (591), by Sir Charles (768).

Foal of 1903

1st, Quickstep [209] chestnut, face and off hind foot white; foaled May 29, 1903; bred and exhibited by John W. Cowie, Markham; sire Attraction [144]; dam Lady Rosebery —208—, by Lord Rosebery (imp.)—9— 402 (1307).

2nd, Pansy —210— brown, star and snip; foaled May 15, 1903; bred and exhibited by Graham Bros., Claremont; sire Alarm —134—; dam Trinket [60], by Fireaway (249).

3rd, Miss Jubilee —217— dark brown; foaled June 29, 1903; bred and exhibited by O. Sorby, Guelph, Ont.; sire Jubilee Chief (imp.) —1— 108 (2122); dam Miss Baker (imp.) —16— (4371).

Best Mare, any age

1st, Miss Baker (imp.) —16— (4371); exhibitor, O. Sorby, Guelph, Ont.

Clydesdale Horse Association

DIRECTORS' MEETING.

A meeting of the Directors of the Clydesdale Horse Association took place at the Rossin House, Toronto, February 4th, 1904, 11 a.m., President William Smith in the chair.

The Secretary presented his annual report, and considerable discussion took place as to the advisability of charging 50 cents each for recording the ancestors of imported horses.

Mr. Ness thought it was a little hard on the importer to be called upon to pay for recording the ancestors.

Mr. Smith was of the opinion that while it caught the importers, this expense should not be borne by the Association, because each member would then have to stand his share of the expense, which was hardly the right thing.

Mr. Hodson thought the Secretary was entirely right in this particular, as all animals printed in foreign records ought to be printed in completion. They should have a grant, he said, from the Provincial or Dominion Government to defray any expenses in this connection, as it should not come out of the funds of the Association, and it would not be a complete pedigree of an imported animal if they did not have these ancestors in the record. It would be unfair to tax the Association, as the men who did not import would then require to pay part of the expense. Mr. Hodson said for the benefit of the country these ancestors ought to be published, and to encourage the importer it should not be paid for by the importer, and he thought they should get a grant, as the live stock men who invest in the live stock industry did not make as much money as they would if they invested the same amount of money in an ordinary enterprise, and it would not be asking too much to ask the Dominion Government to make a grant.

On motion it was resolved: "That the Secretary's report be adopted, and that they continue to charge 50 cents each for recording ancestors of imported horses." Carried.

Moved by Peter Christie, seconded by Jas. M. Gardhouse: "That we recommend the appointment of Mr. F. M. Wade as Assistant Secretary of the Clydesdale Horse Association." Carried.

The next matter which came before the Board was that of exhibiting at St. Louis and the formation of a National Live Stock Association.

Resolutions were drafted to be submitted to the annual meeting and appear in the minutes of that meeting.

ANNUAL MEETING.

The eighteenth annual meeting of this Association was held in the Rossin House, Toronto, February 4th, 1904, 2 p.m., President William Smith in the chair. The minutes of the last annual meeting were accepted as read.

REPORT OF THE SECRETARY-TREASURER.

This Association has progressed wonderfully during the last pear. A great many Clydesdales have been imported, both male and female; of the imported ones, 132 stallions and 57 mares have been recorded. This number is, perhaps, only a small percentage of them.

The charging of a fee of 50 cents each for recording the ancestors of the imported horses has proved beneficial to the Association, as it has enabled us to register those

pedigrees without drawing upon our reserve funds, as we have had to in the past when we frequently received $1 for recording the pedigree of an imported horse, and had to pay as much as $3 to print his and his ancestors' pedigrees, besides commission, postage, stationery, etc. No business can be a success when more money is paid out than is taken in.

We have recorded 1,120 pedigrees this year, and have made 661 transfers and Scotch registrations, against in 1902, 694 registrations and 415 transfers, an increase in registrations of 426. This is quite encouraging. Sales of Clydesdales have been very satisfactory all through the season, many of our importers having to bring out fresh consignments often during the year. There has been a great demand for stallions all over Canada from the Atlantic to the Pacific, and they have been sold at paying prices. Very few have gone to the United States.

Volume 12 has been printed and sent out to members to whom it was due. It contains the pedigrees of 590 stallions and 920 mares, a total of 1,510 pedigrees. It contains the minutes of the last annual meeting, and a list of prize winners at the Industrial Exhibition and Spring Stallion Show. Volume 13 is in the hands of the printer, and will be a large volume.

Clydesdales were well brought out at all the principal exhibitions in Canada, and at the International in Chicago, where Canadian horses were at the front all the time. The first Spring Stallion Show, to which we contributed $500 for premiums, was a great success, as you all know. A cup, value $50, was also presented at this show. Two cups, valued at $25 each, were given to the Calgary Show, to be competed for two years; $100 was presented to the Industrial Exhibition for prizes. A cup, valued at $25, was donated to the Halifax, N.S., Show, and one to Winnipeg, value $25, all these to be competed for twice, making a total of $825 paid out in prizes.

It has already been decided by the Directors that $750 be given to the Second Spring Stallion Show, to be held at Toronto, and $400 to one to be held at Ottawa.

FINANCIAL STATEMENT.

For the Year Ending December 31st, 1903.

Receipts.

Balance on hand January 1st, 1903		$1,051 10
Twenty-two volumes sold at $2		44 00
Members' fees, 364 at $2		728 00
Registration fees		1,547 00
Total		3,370 10

Expenditure.

Insurance on books		$ 7 00
Printing and stationery		57 00
Postage, telegrams and express		101 92
Stenographer and auditor		13 50
Prizes and Prize cups		825 00
Printing and binding Vol. 12		567 00
A. P. Westervelt, advertising scheme		100 00
Committee expenses		272 50
Commission on 500 Scotch pedigrees		75 00
Commission on 1,120 pedigrees at 35 cents	$392 00	
661 transfers at 15 cents	99 15	
		491 15
Balance on hand		859 33
Total		$3,370 10

I hereby certify that I have examined the books and accounts of the Clydesdale Horse Breeders' Association, and that the foregoing statement is correct and in accordance therewith.

CHAS. F. COMPLIN, Auditor.

HENRY WADE, Secretary-Treasurer.

Toronto, Ont., Jan. 18th, 1903.

PRESIDENT'S ADDRESS.

By William Smith, Columbus.

It has usually, in fact, I believe, quite often, been the custom for the President to open the meeting with a few remarks. I have decided that perhaps it would be better to make any remarks I might consider in place in moving the adoption of the report which you have just heard. In the first place I wish to congratulate you upon the splendid meeting we have here to-day. It appears to me, whilst I have had varied experiences in my life, one of the most pleasing is being presiding officer of the largest gathering of Clydesdale men that I think we have had in the last eighteen years. To my mind it shows, amongst some of the things, that a great deal of interest is being taken not only in the progress of our Association, but in the great and splendid breed of Clydesdale horses we have, not only in the Province of Ontario, but scattered here and there throughout the Dominion, and those of us who have been privileged to watch the work of the Clydesdale Association during the last eighteen years, must, I think, come to this conclusion that our influence is a growing and widening one. Perhaps, sir, varied reasons may be given for that, but it appears to me one of the principal reasons that can be given is not simply that there is money being made out of them, but that the standard of those who are engaged in it is a higher one than we knew thirty or forty years ago. This, it appears to me, is a pleasant state of affairs.

Now, in looking back over the work of the last year, as seen at our different exhibitions, at Toronto and Chicago, very pleasant recollections indeed must come to those who visited those shows. We were able to put up at Toronto last year one of the finest exhibits that I have ever seen at the Industrial Show, and I might for a moment revert to the show held here last March, which was the best show of Clydesdale stallions ever seen in the Province of Ontario, and, sir, it is a pleasure to me to be able to point to the fact that our Canadian, Ontario, breeders and importers were able to go to Chicago last fall and bring back a great many of the best prizes from that International Exhibition. Now, these are things which we can point to with a great deal of pride, and I just want to draw your attention to another matter in this report, and it is the increased registration which we notice, showing to a certain extent that the members of registered Clydes are increasing, especially in the Province of Ontario. There is one clause in this report which might be of a little controversal nature, that is, the registration of different crosses of imported horses. Mr. Turner, of Calgary, attended one of our meetings in the fall, where he took very strong ground indeed that this was a retrograde movement. He not only took strong ground, but almost insinuated that it was a wrong which was being perpetrated upon the importers, and at that time many of us had not given this matter any attention beyond the fact that the importer had to pay considerable sums of money. But after considering it and looking closely into it, we came to the conclusion, and your Board came to that conclusion, that you who are breeding and not importing had no right to do the work of

those importing, that those importing had a right to pay for their own registrations, and the more I look into the clause of the report of last year, to which Mr. Turner objected strongly, the more I think it is in the right direction.

Now, we are, perhaps, drawing very near to the parting of the ways. For a great many years we have done well with our records; we have been very much pleased with them, and been able to point with a great deal of pride to them, but, as you have noticed, steps are being taken, it is true, perhaps not very swiftly, but steps are being made to change our records to more of a national importance. Upon that point, sir, I have no hesitation in saying I am in hearty sympathy with it, and in giving to those who have managed the record in the past every degree of credit, but it appears to me the time is now already upon us when we must take a more advanced step, and Canada, as we know it is the Dominion, must control the records of our live stock. We must show, not only the Republic to the south of us, but to the world, that we have a national record, and, sir, I am very much mistaken in the Clydesdale men if they are not in hearty sympathy with the movement in that direction.

Another matter is the St. Louis Exposition. We have lived here upon good terms with the great Republic to the south of us; we not only considered it a privilege, but a pleasure to exhibit at Philadelphia, Buffalo and Chicago, showing our herds and flocks there because we came back with many of the best prizes they offered at those exhibitions; but things have taken a different turn, and whilst some hard things have been said and written in connection with making an exhibit there, it does appear to me that when everything is examined everything points to the fact that we would be losing to a certain extent our manhood if we yielded to the state of affairs that is existing in connection with that exhibition. Now, this is a matter which will come up for discussion, on which I hope you will express your views most freely.

Now, in connection with the number of horses imported into Canada, may say up to October 31st, 234 came into Canada from Great Britain, and 33 to the United States. You will notice nearly three-quarters of the exports from Great Britain came into Canada. Why should that be? Is it possible the United States can do without importing from the mother country? Other reasons I know are given. I for my part am scarcely in a position to give one, but it does appear to me this state of affairs is of sufficient importance to give us some thought in connection with our trade with the great Northwest. Now, if they have only imported 33 stallions, it naturally arises that those sent into the Northwest from the United States must be home-bred, and in connection with that you have heard a great deal of discussion during the past year or more in connection with the scrub horses coming into Canada. The other day a delegation went to Ottawa, and upon their return home they were very hopeful changes would be made in the direction asked for by those gentlemen; and I am bound to say this, we have as our Live Stock Commissioner a gentleman, I believe, that is wholly in sympathy with the views as set forth by that delegation, and who, perhaps, as I stated in another direction, as not moving so very swiftly, but still moving surely, and if the Government of the day is wise to their own interests, is alive to the interests of this great country of ours, they will move in the direction asked for by that delegation.

Now, these are some of the things which, I think, are of some interest to us as Clydesdale men, and you will be able to deal with them yourselves this afternoon.

OFFICERS FOR 1904.

Honorary President—F. W. Hodson, Dominion Live Stock Commissioner, Ottawa.
President—William Smith, Columbus.
First Vice-President—Oswald Sorby, Guelph.

Vice-Presidents for the Provinces :

Ontario—Robert Miller, Stouffville.
Manitoba—J. A. S. McMillan, Brandon.
Alberta—John A. Turner, Calgary.
Quebec—Robert Ness, Howick.
Assiniboia—A. Mutch, Lumsden.
British Columbia—D. Tolmie, Victoria.
Maritime Provinces—Hon. T. R. Black, Amherst, N.S.

Directors :

Thomas Graham, Claremont ;
Peter Christie, Manchester ;
George Gormley, Unionville, Ont ;
Robert Beith, M.P., Bowmanville ;
John Bright, Myrtle ;
Jas. Torrance, Markham ;
H. G. Boag, Churchill.

Delegates to Fairs and Associations :

Industrial Exhibition—Robert Beith, M.P., and William Smith.
Ottawa Exhibition—Peter Christie and George Gray, Newcastle.
Western Fair—A. Innes, Clinton, and Jas. Henderson, Belton.
Quebec and Sherbrooke—R. Ness and George Stewart, Howick, Que.
Winnipeg Exhibition—H. Nichol, Brandon, Man., and Geo. Greig, Winnipeg, Man.
Horse Breeders' Association—Peter Christie and Fred. Richardson, Columbus.

The following gentlemen were appointed an Executive Committee until the Board met :—William Smith, Thos. Graham and John Bright.

RESOLUTIONS.

A communication was read from Mr. J. A. S. McMillan, of Brandon, Man., asking the Clydesdale Association to give a number of prizes at the Dominion Exhibition, Winnipeg.

Mr. Hodson stated it was very important that a liberal grant be made to Winnipeg from this Association, as the Americans were offering special prizes there for animals recorded in their own books.

On motion it was resolved : "That the Clydesdale Horse Association of Canada grant $300 towards the prize list of the Dominion Exhibition, Winnipeg, this year, on condition that all animals competing for any part of this contribution must be registered in the Clydesdale Stud Book of Canada."

Mr. F. W. Hodson outlined the result of his official visit to St. Louis, and also explained to the breeders the exact condition of the regulations existing between the United States and Canada, and produced letters from the United States Department of Agriculture substantiating the same.

"That we, the Clydesdale Horse Association, in annual meeting assembled, have heard the resolution passed by the representatives of the various Horse Breeders' Association at a special meeting held in the Rossin House, November 11th, 1903, and we fully endorse the sentiments expressed therein ; and also endorse the action taken by F. W. Hodson, Live Stock Commissioner, at the conference held in St. Louis." Carried unanimously.

On motion it was resolved : "That the Clydesdale Association of Canada in annual convention consider it desirable to establish a National Live Stock Association, and that we forthwith appoint delegates."

Delegates: William Smith, Columbus, Ont.; Robert Miller, Stouffville, Ont.; Peter Christie, Manchester, Ont.; John Bright, Myrtle, Ont.

"That Mr. F. M. Wade be appointed Assistant Secretary of the Clydesdale Horse Association." Carried.

On motion of Robert Miller, seconded by Arthur Johnston, it was resolved: "That we, the members of the Clydesdale Horse Association of Canada, in annual meeting assembled, memoralize the Dominion Government to place a minimum specified duty of $30 on each horse that is being imported into Canada when the value is under $150. When the value is above that amount, that the duty be twenty per cent., always excepting registered horses for breeding purposes, which shall be admitted free of duty when owned and imported by British subjects, bona fide residents of the Dominion, and registered in the recognized Stud Books for the different breeds of horses in the country in which the breed originated, or in the Stud Books recognized by the Agricultural Department of Canada."

Mr. Robert Miller, in speaking to the motion, said: I might state to you, to put it very plainly, that I am afraid our representatives in Ottawa have been a little bit too slow in acting and taking strong action on this matter. I said last night at the dinner that perhaps there was not any greater curse could come upon any country than the introduction of these scrub horses being brought by the thousand into the Northwest. We have as fine a country as ever God's sun set upon, and it disfigures that ground and does an injury there that will take all the people there a lifetime to decimate and blot out again. It takes a man a lifetime, and it takes the very best talent to bring our horses to the standard we have them to-day; but, I tell you, they are being degraded, and the standard is being lowered fast in the Northwest, and we ought to pass this resolution, and I do not think any deputations should be necessary to wait upon the Government to bring into force such a common-sense resolution as this.

Mr. Johnston: I rise to say I was in Ottawa on one occasion, and I referred to this matter, and Mr. Fisher said: "Our people in the Northwest want these horses." Yes, no doubt people want reaping machines, but you do not let them in so easy. I am very glad Mr. Miller has taken the pains to write such a sweeping and entirely necessary resolution to bring before the Government the matter in hand.

J. G. Clark: In connection with this motion, which, I think, is in the right direction, I am afraid it does not go quite far enough. We all know that there is a privilege granted to Americans coming over into Canada to bring a certain number of horses as settlers' effects. I believe that number is far too high, and there should be a move towards restricting the number of horses in proportion to the amount of land these men are taking up; they can bring a great many horses in in that way, even if this motion is carried into effect, and I think we might look into that matter as well.

Mr. William Smith: There is just one point that strikes me here, and that is, "Bona fide residents of the Dominion and registered in the recognized Stud Books for the different breeds of horses in the country in which the breed originated."

Mr. Miller: I might explain to you that the ruling of the United States is that Stud Books are recognized where given a pedigree extending to a certain length registered in books where certain breeds originated. We have no breed originating in this country except horses in Quebec. We want to recognize the books of Great Britain; we certainly can take no exception to the books conducted so well and so long as in Great Britain. I think, as far as my memory can trace, that would only allow standard trotters to come in from the United States, and I would suggest these horses be allowed to come in free of duty when registered in their books, because the breed originated there, and so we could throw around them such restrictions as we deemed necessary. I think that clause is all right; that is copied from the law in the United States.

We don't want Clydesdales brought in from the United States simply because they are registered in our book. We don't want to allow any gentleman living in the United States to bring horses into Canada and sell them here. Those horses have to be

registered and owned, according to the resolution, by people of this country; the owners must be British subjects.

Mr. Johnston: I can only see one slight objection, and that is where many thousands of people have come into the Northwest recently and not yet naturalized; it would be rather a hardship if they filled all the other requirements. That is the only objection I can see in it at all.

Mr. Hodson: I might say in that particular there is an understood arrangement between the United States and Canada that all books recognized by the Washington Department of Agriculture will be recognized by the Dominion Department of Agriculture and by the Dominion Treasury Department. There is also an understanding by the Dominion Department of Agriculture and the Treasury Department. The question is, Do you want that to continue? There has not been any change for the past fourteen years. Now, I am not defending or upholding it, but that is the condition of affairs, and you have never asked for anything else since, and that is one of the questions that should come up for consideration at the Ottawa meeting.

Mr. Miller: I will tell you my reason for wording the resolution the way it is. I have stated their horses should be admitted free if they were registered in certain books, and if owned and imported here by British subjects that were bona fide residents in this country. My reasons for wording it this way are: There are men that are particularly anxious to keep on doing business in the Northwest; they will get men to bring horses in there, and we will have to throw around them most careful guards or the men in the United States will get men living in this country to sell them in their own names. If we do not guard that in the safest and strongest way, then the Americans will get men to act here as agents, that were not really the owners, but residents; therefore, it is necessary to couple the two together and make it British subjects and bona fide residents of our country before they can sell them.

"That the Clydesdale Horse Association of Canada, in annual meeting assembled, appoint a committee to confer with the Railway Commission recently appointed in regard to better railway transportation rates." Carried.

The Executive Committee were appointed the delegates to act on the Railway Commission.

LIST OF MEMBERS.

Adams, Ed.....Grenfell, Assa.
Alsop, Jos .....Glasgow
Alton, A. P.....Appleby
Aitcheson, And.....Guelph
Annan, And.....Dunbarton
Annis, Lewis.....Courtice
Armstrong, Geo.....Speedside
Attrill, E. C.....Goderich
August, E. A.....Bates, Man.
Baird, Thos.....Ormstown, Que.
Bailey, Wm.....Carberry, Man.
Bain, Wm.....Taunton
Balson, John.....Oshawa
Balsdon, J. D.....Markham
Bawden & McDonald..Exeter
Bassingthwaite, Peter. Richmond Hill
Beatty, Jas.....Kirkton
Beatty, Wm.....Thornhill
Beith, Robert, M. P...Bowmanville
Bell, A. & J.....Athelstane, Que.
Bell, Jas. F .....Amber
Bell, John.....Audley
Bell, Wm .....Avonton
Bell, J. R .....Athelstane, Que.
Bennie, G. & W .....Castleavery, Man.
Bennett, D .....Russelton
Berry, Geo.....South Monaghan
Black, W. W. .....Amherst, N.S.
Black & Son, J. L.....Sackville, N.S.
Blackburn Enos.....Uxbridge
Boag, H. G.....Barrie
Boag, A. W .....Owen Sound
Boyd, G. W.....Owen Sound
Boles, Levi S .....Springville
Botham, Geo.....Bradford
Bostwick, Alf.....Temperanceville
Bostwick, W. N .....Vandorf
Boles, Jr., Anthony...Concord
Boles, Jas.....Eden Mills
Birrell, D .....Greenwood
Brady, Thos.....Chatham
Brodie, G. A.....Bethesda
Bright, John ..... Myrtle
Bright, Wm.....Raglan
Brooks, Geo. S .....Bond Head
Brown, T. A .....Stockton, Man.

LIST OF MEMBERS.—Continued.

Brown, W. G.....Fergus
Breakey, J. W.....Newtonbrook
Brewster, Wm.....McIntyre
Brumwell, Isaac.....Victoria Square
Bryce, Jas.....Victoria, B.C.
Bryant, J. H.....Ashburn
Bull Bros.....Yorkton, Assa.
Bull, L. J C.....Agricola
Bulmer, R.....Forester's Falls
Bunker, S C.....Pickering
Burns, David.....Brooklin
Butler, W. E.....Ingersoll
Buerly, R. Reed.....Cook's Creek, Man.
Bennett, Chas.....Russelton
Bredt, P. H.....Regina, Assa.
Boag, John A.....Ravenshoe
Bertram, David.....Malvern
Brock, Wm.....New Dundee
Banks, Lorenzo.....Pickering
Barber, C. W.....Gatineau Point, Que.
Calder, Chas.....Brooklin
Cairns, Thos.....Dublin
Cairns, A.....Athelstane, Que.
Cameron, A.....Annan
Cameron, Colin.....Etobicoke
Cameron, John M.....Anderson
Cameron & Son, Alex.Teston
Cameron & Co., A....Oak Lake, Man.
Campbell Bros.....Walker's
Campbell, Jas. R.....Palmerston
Campbell, N.....McCready
Cargill & Son, H.....Cargill
Carstairs, D.....Bomanton
Carr, Joseph.....Coffee's Corners, Q.
Cation, Matthew.....Brampton
Charlton, E. & W.....Duncrief
Christie, Peter.....Manchester
Christie, W. L.....High River, Alta.
Clark, J. G.....Ottawa
Clark, C. E.....St. Cloud, Minn., U.S.
Clark, E. W.....Ottawa
Colquhoun, Wm.....Mitchell
Cook, G. J.....Ingersoll
Cooper, Geo.....Claremont
Coates, W. H.....Claremont
Cockburn, Geo.....Baltimore
Corneil, Wm.....Lindsay
Cordiner, John.....Ennotville
Coursey, John.....Lucan
Courtney, A. C.....Dunbarton
Cowan, W. J.....Cannington
Cowie, John W.....Markham
Cox, John.....Amber
Cox, Robert.....Amber
Coyte & Sons, Thos...Port Hope
Crawford Bros.....Brown's Corners
Creery, Jonas E.....Winchelsea
Clark, John, jr.....Crowfoot, Alta.
Cochrane, Geo.....Enfield
Coursey, T. & C. H....Lucan
Campbell, Glen.....Gilbert Plains, Man.
Canning, Robt.....Hagerman
Cameron, Alex.....Oshawa
Cameron, A. E.....Beaverton
Dalgety Bros.....London
Davidson John.....Ashburn
Davidson, Jas. I.....Balsam
Davidson, J. C.....Little Britain
Davidson, J. F.....Wingham
Davidson, Peter.....Fergus
Davidson, Geo.....Cherrywood
Davies, Robt.....Toronto
Davies, G. T.....Toronto
Davis & Graham.....Schomberg
Davis, Jas. T.....Aurora
Devitt, Robt.....Brougham
Devitt & Sons, Isaac...Freeman
Dickison, R.....Guelph
DeGreer, John T.....Oakwood
Doherty, Alex.....Ellesmere
Doherty, Wm.....Ellesmere
Donovan, D.....Seaforth
Douglas, P.....Madford, Man.
Douglas, A.....Markham
Dinwoody, Wm M....Cookstown
Eadie, A. G.....Vars
Eadie, Jas. D.....Vars
Eagleson, Alf. E.....Coldsprings
Eaid C. E, V. S.....Simcoe
Edwards & Co., W. C..Rockland
Elliott, Jas.....Tullamore
Emboden, J. G.....Bradenbury, Assa.
Evans, Jos. H.....Claremont
Evans, Jas.....Claremont
Edwards, Ira.....Cannington
Everest, Geo.....Scarboro
Fawn Bros.....Claremont
Ferrier, Geo.....Brandon, Man.
Fischer, E.....Ben Miller
Fleming, Robt.....Poole
Forgie, John.....Claremont
Forsythe, J. M.....Claremont
Foster & Sons, Wm.....Humber
Fraser & Son, J. H.....Indian Head, Assa.
Frayn, Wm.....Springbank, Alta.
Fulton, John.....Brownsville
Fitzpatrick, W. L.....Fairfax, Man.
Galbraith & Sons, Alex.Janesville, Wis., U.S.
Gardhouse, J. M.....Weston
Gifford, E. A.....Taunton
Gilchrist, Jas.....Shellmouth, Man.
Gillies, D.....Cambray
Gaspel, Wesley.....Taunton
Goslin, Jas.....Lindsay
Gormley, A. G.....Unionville
Graham, Robert.....Claremont
Graham, T. A.....Claremont
Graham, W. M.....Claremont
Graham, Wm.....Barrie
Grandy, R. C.....Springville
Gray, Geo.....Newcastle
Gray, John.....Atwood
Gray, J. & W.....Londesboro
Greer, Jas.....Ormstown, Que.
Greenlees, Thos.....Bowmanville
Grieve, A.....Avonton
Greer, Thos.....Claremont
Groat, Chas.....Brooklin
Grierson, Allen.....Dunrobin
Gardhouse, C. S.....Humber

LIST OF MEMBERS.—Continued.

Gunn, R. E.....Beaverton
Hadden & Son, Geo..Wick
Hall, Michael.....Wishart, Assa.
Ham, John.....Brougham
Hamilton, John.....Ravenshoe
Harten, W. H.....Twin Elm
Harton, C.....Stittsville
Hartman, L. L.....Aurora
Hassard, T. H.....Millbrook
Hay, John.....Hannah, N.D., US.
Hemmingway, M. R....Unionville
Henderson, Jas.....Belton
Henderson, Geo.....Keady
Henderson, R. J.....Goderich
Hendrie, Wm, jr.....Hamilton
Herold, P. V. S.....Tavistock
Hill, Wm. G.....Newmarket
Hodgkinson & Tisdale.Beaverton
Hodson, F. W.....Ottawa
Hogate, A. R.....Sarnia
Hosken, A. E.....Cobourg
Hoover, Eli.....Mongolia
Hoover, J. H.....Ringwood
Howard, W. J.....Amber
Howden & Son, J. D....Whitby
Hubble, D. A.....Myrtle
Hummerson, Ira.....Embro
Humber, J. C.....Danforth
Hyland, Thos.....Cadmus
Hall, Thos.....Columbus
Hay, Wm.....Tara
Hood, T.....Milliken
Hislop, Jas.....Stratford
Inbry, S. M.....Tavistock
Isaac, Geo.....Bomanton
Isaac, John.....Markham
Ismond, W. H.....Kenlis, Assa.
Isaac, Alex.....Cobourg
Jackson & Son, Geo..Downsview
Jackson, Robert.....Brown's Corners
Jackson, Richard.....Alma
James, D. W.....Perch
Jamieson, And.....Streetsville
Jewell, W. E.....Bowmanville
Jinkins, Jas.....Oshawa
Johnston, A.....Greenwood
Johnston, S. F.....Ashburn
Johnston, R. G.....Gormley
Joyce, Wm.....Beaverton
Jackson, Jas.....Weston.
King, Frank.....Fingerboard
Laing, Thos.....Eburne, B.C.
Lane, Hy.....Columbus
Langdon, Harry.....Hazeldean
Langmaid, G. N.....Courtice
Lawrie, John.....Malvern
Laviolette, Jos.....Virginia
Laycock & Son, Mrs. W. Calgary, Alta.
Lee, G. F.....Claremont
Leighton, A.....Derryville
Lenton, Wm.....Claremont
Leonard, Jas.....Schomberg
Linstead, W. D.....Queensville
Little, D.....Portage la Prairie, M
Little, John.....Okotoks, Alta.
Little, S. G.....Hagerman
Lougheed, H. P.....Heathcote
Love, David.....Oakland, Man.
Laundy, Chas. E.....Newmarket
Malcolm, G.....Forsyth
Marshall, R.....Elora
Marshall, J. H.....Stewart, Assa.
Major Bros.....Whitevale
Menzies, Robt.....Winthrop
Millard, J. H.....Altona
Miller, Robt.....Stouffville
Moore, Geo.....Waterloo
Moore, Jas.....Brooklin
More, W. R.....Almonte
Morris, E. J. C.....Stouffville
Morrison, John.....Brooklin
Mossop, Wm.....St. Marys
Milne, Jas. A.....Spiers
Miniota Horse Ass'n...Miniota, Man.
Murray, Walter.....Avonton
Mutch, A. & G.....Lumsden, Assa.
Mowat & Bate.....Shelburne
Myles, J. & A.....Thornbury
Morrison, J. D.....Argyle
Maxwell, Thos.....Langley, B.C.
Myles, C. & E.....Bedford Park
Mountjoy, John.....Foley
Miller & Sons, John...Brougham
Mountjoy, F.....Columbus
Medland, John.....Brooklin
McAvoy, T. C.....Balsam
McBeth, Donald.....Oak Lake, Man.
McBrine, Robt.....Chatsworth
McBride, J. A.....Shedd, Oregon
McCaig, Alex.....Aberfoyle
McCaig, Hector.....Aberfoyle
McCallum, Archie.....King
McCallum, John.....Dauphin, Man.
McCrae, David.....Guelph
McDonald, A.....Granton
McDermott, Wm.....Living Springs
McEachern, P. R.....Eldon
McElheron, Neil.....Chatsworth
McFarlane, D. A.....Huntingdon, Que.
McFarlane, John.....Moose Jaw, Assa.
McGeachey, J. & R....Coleraine
McGillivray, J. A.....Uxbridge
McGugan, A. D.....Rodney
McKeever, John.....Listowel
McKinnon, Alex.....Hillsburg
McLachlan, Neil.....Falkirk
McLean, A.....Manilla
McMillan, J. A. S.....Brandon, Man.
McMillan, T.....Constance
McMichael, T.....Seaforth
McRae & Son, Jas.....Cherrywood
McTaggart, Wm.....Appin
McGill, Wm.....Yelverton
McLatchie, I. H.....Gatineau Point, Que
McGregor, Alex.....Uxbridge
McGillivray, Theo.....Whitby
McBride, S.....Toronto
McLean, Samuel.....Franklin, Man.
McEwen, D.....Dewittville, Que.
Ness, Robert.....Howick, Que.

LIST OF MEMBERS.—Concluded.

Newman, Robt..... Woodford
Nichol, Geo.....Waubuno
Nichol, H.....Brandon, Man.
Noble, Jas.....Toronto
Nix, Jas.....Nortonville
O'Hara, J.....Marne
Oliver, T. H.....Victoria Corners
O'Neill, J. D.....London
Ormiston, Wm., jr.....Columbus
O'Leary, John.....Mayfield
Paton, Jas.....Swinton Park
Paton, Hugh .....Montreal, Que.
Patterson Bros.....Millbrook
Pa'erson, Wm .....Columbus
Paling, R' & C.....North Seneca
Peel, John .....Chatham
Petch, Geo. W.....Aurora
Partridge, Geo. H.....Saltcoats, Assa.
Peterson, A.....Hawkesville
Pringle, Alex.....Unionville
Power, Chester.....Bowmanville
Prouse, S. J.....Ingersoll
Pugh, D. E.....Pickering
Pugh, D. E.....Claremont
Pugh, W. D.....Claremont
Puckrin, Thos.....Audley
Proctor, J. A.....Beaverton
Pugsley, W. H.....Richmond Hill
Pepper, Geo.....Toronto
Rankin, J. R.....Hamiota, Man.
Regan, M.....Lemonville
Reesor, H.....Columbus
Richardson, Fred.....Columbus
Richardson, Lou.....Columbus
Robertson, Thos. W.....High River, Alta.
Robinson, Thos.....Kintore
Robinson, Mrs. J. W.....St. Marys
Rosevear, A. H.....Cold Springs
Rumsey, A. W.....Westfield, N.Y., U.S.
Runceman, Geo. A.....Warkworth
Russell, D.....Brougham
Russell' A. S.....Carrville
Rutledge, W. H.....Streetsville
Ross, T. W.....Myrtle
Semple, Hugh .....Hereward
Sewell, D.....Cedar Grove
Scott, Adam.....Markham
Shattuck, W. D. Mrs.....Langdon, Alta.
Sims Bros.....Thamesford
Skinner, Thos.....Mitchell
Slack & Hendrie.....St. Marys
Smith, John E.....Brandon, Man.
Smith, Walter Harland. Toronto
Smith, Wm.....Columbus
Smith, Mary Ann.....Yorkton, Assa.
Sorby, O.....Guelph
Southend, J. H.....Souris, Man.
Spears, J. V.....Atha
Smith, Dr. A.....Toronto
Stanley, W. J.....Pickering
Stauffer, W.....Ringwood
Stephens & Son, L. E..Robinson, Ill., U. S.
Stevenson, D.....Wawanessa, Man.
Stevenson, Noble S....Brougham
Stewart, G. G.....Howick, Que.

Storey, Harvey.....Picton
Sullivan, M. D.....Douro
Stewart, John.....Springbank
Smillie, A. G.....Hensall
Smith, Neil.....Brampton
Stark, John.....Columbus
Salter, Roger.....Holland Landing
Secord, Angus.....Woburn
Smith, R. B.....Columbus
Somerfeldt, L.....Unionville
Slater, Jonathan.....Buttonville
Taylor, Thos.....Harwich
Taylor, Jos.....Elgin, Man.
Thompson, W. H.....Manchester
Thorburn, D.....Davisburg, Alta.
Toole, J. C.....Mt. Albert
Torrance, Jas.....Markham
Traynor, J. D.....Regina, Assa.
Traviss, A. E.....Queensville
Trick, Richard.....Unionville
Turner, John A.....Calgary, Alta.
Turner, Robert.....Millarville, Alta.
Tumlin, G. C.....Toronto
Tabor, R. H.....Condie, Assa.
Trann, W. H.....Cedar Grove
Ulyott, Geo.....St. Marys
Van Horne, Sir Wm. C. Montreal, Que.
Veale, John.....Beaverton
Vipond, John.....Brooklin
Wagg, Jas.....Stouffville
Wagg, Nelson.....Goodwood
Wallace, Irvin.....Granton
Wallace, G. A.....Ponsonby
Warrilow, John.....Owen Sound
Watt, W. B. & Son.....Salem
Watson, T. D.....Caron, Assa.
Watson, Jas. A.....Eden Mills
Watson, R.....Wetaskiwin, Alta.
Webster, W. W.....Glandine
Webster, Jas.....Oakwood
Wells, W. J.....Temperanceville
White, Job.....Ashburn
White, Jas. W.....Brooklin
White, Jos. A.....South Monaghan
Wideman, John G.....Stouffville
Wilcocks, S.....Thornhill
Willson, Dr. E. L.....Marysville
Wilkie, Wm.....Toronto
Willis, Rich.....Pine Grove
Wilson, Wm.....Oshawa
Williams, W. H.....Bowmanville
Winter, Wilbur.....Wicklow
Wishart, John.....Portage la Prairie
Woodley, Wm.....Dundas
Wood, Thos.....Blackstock
Wildbrook, Wm.....Hagersville
Wren, C.....Uxbridge
Wright, Lewis A.....Salisbury, N.B.
Wright, Wm.....Bond Head
Washington, J. G.....Ninga, Man.
Yake, D.....Kintore
Yake, P.....Kintore
Young, W. W.....Binkham
Young, Jas.....Binkham
Young, R. B.....Binkham

PRIZE WINNING CLYDESDALES AT THE DOMINION INDUSTRIEL EXHIBITION, TORONTO, 1903.

Stallion, 4 years old and upwards

1st, Baron Primrose (imp.) [3979] (10980), brown, white spot on face and hind feet white; foaled May 20, 1899; bred by Jas. D. Fletcher, Rosehaugh, Scotland; imported and exhibited by Graham Bros., Claremont, Ont.; sire MacEachran (9792); dam Montrave Primula [4973] (11773), by Prince of Albion (6178).

2nd, Vanora's Pride (imp.) [3980] (11224) brown, white face, near fore leg and hind ankles white; foaled June 15, 1899; bred by George Alston, Loudoun Hill, Darvel, Scotland; imported and exhibited by O. Sorby, Guelph, Ont.; sire Baron's Pride (9122); dam Vanora (9348), by Darnley (222).

3rd, Stewart's Pride (imp.) [4008] (11552) brown, stripe, hind pasterns white; foaled May, 1899; bred by T. A. Anderson, Alness, Scotland; exhibited by Dalgety Bros., London; sire Lord Stewart (10084); dam Pride of Ballachraggan [4907] (13684), by Baron's Pride [3067] (9122).

4th, Right Time (imp.) [3992] (11482) brown, white on face, off hind leg white; foaled 1899; bred by H. Webster, Morton House; exhibited by T. H. Hassard, Millbrook; sire Prince Thomas [4028] (10262); dam by Macbeth [4055] (6118).

Stallion, 3 years old

1st, Cairnhill (imp.) [3645] (11292) black, ratch, near fore and hind feet white; foaled May, 1900; bred by Jno. Struthers, Longhouse, Hurlford, Scotland; exhibited by Graham Bros., Claremont; sire Ethiopia [3429] (5750); dam Bess of Longhouse [4085] (14858), by Sterling [3681].

2nd, Lavender (imp.) [3375] (11394) brown; foaled 1900; bred by R. Turner, Portsay, Scotland; imported and exhibited by Smith & Richardson, Columbus; sire Glenzier [356] (10353); dam May Montrose [3866] (13646), by Lord Montrose [3568] (7973).

3rd, Gallant Chattan (imp.) [4223] (Vol. 26, S.) brown, grey hairs through body, stripe, near fore and both hind legs white; foaled July 4th, 1900; bred by Jno. Samson, Drumcross, Scotland; imported and exhibited by J. B. Hogate, Sarnia, Ont.; sire Clan Chattan [4224] (10527); dam Polly of Drumcross [5363] (13595), by Barrister [4225] (10312).

4th, Robson's Fidelity (imp.) [3347] (11879) bay, stripe, white on feet; foaled 1900; bred by P. Carruthers, Portrack, Scotland; imported by Dalgety Bros., London; exhibited by J. M. Gardhouse, Weston; sire Prince Shapely [3227] (10111); dam Abbess 2nd [3801] (9532), by King of the Clans [3525] (2201).

Stallion, 2 years old

1st, Criterion (imp.) [3984] (11670) bay, white face and legs; foaled May 31, 1901; bred by A. Mitchell, Barcheskie, Scotland; imported and exhibited by Graham Bros., Claremont; sire Woodend Garty [3847] (10663); dam Brenda 7th of Barcheskie [4433] (14330), by Baron's Pride [3067] (9122).

2nd, Ardlethen Premier (imp.) [3971] bay, face and off fore leg white; foaled April, 1901; bred by R. Copland, Ellon, Scotland; imported and exhibited by Smith & Richardson, Columbus, Ont.; sire Prince Thomas (10262); dam Mary Garden [4880] (12439), by McCamon (3818).

3rd, Baron Hamilton (imp.) [3486] (11603) brown, face and near hind leg white; foaled May 1, 1901; bred by Jas. Hamilton, Boreland, Scotland; imported by Graham Bros., Claremont, Ont; exhibited by W. & R. Dingwall, Hopeville, Ont.; sire Baron's Pride [3067] (9122); dam Fancy of the Fleet [4978] (12172), by Knight o' Lothian (4489).

Stallion, 1 year old

1st, MacClure [4018] bay, little white on front feet, hind feet white; foaled August 4, 1902; bred by Jas. I. Davidson, Balsam, Ont.; exhibited by Jno. Davidson, Ashburn, Ont.; sire Macqueen (imp.) [4621] 3513 (5200); dam Cairnbrogie Maggie [2595] by Sir Walter (imp.) [1131] 6478 (8272).

2nd, No Surrender [3998], dark bay, star and snip, near hind foot white; foaled May 7, 1902; bred by Wm. Ratcliffe, Columbus, Ont.; exhibited by Alex. Cameron, Oshawa, Ont.; sire Royal Cairnton (imp.) [2730] (10875); dam Nell [4808] 10023, by Craichmore Darnley [2127] (5667).

3rd, Proud Gordon [3411] dark brown, face and four feet white; foaled April 3, 1902; bred by Jas. Leonard, Schomberg, Ont.; exhibited by Smith & Richardson, Columbus, Ont.; sire Lewie Gordon (imp.) [1602] (7918); dam Minnie Bright [3619], by The Bright (imp.) [111] (5393).

4th, Royal Tom [3557] bay, star, hind feet white; foaled May, 1902; bred and exhibited by Wm. Foster & Son, Humber, Ont.; sire Corsewall's Grandson (imp.) [3045] (8544); dam Nettie of Castlemore [368].

Stallion, any age

1st, Cairnhill (imp.) [3645] (11292); exhibitors, Graham Bros., Claremont, Ont.

Filly, 3 years old

1st, Princess Royal [3552] brown, star, off hind ankle and nigh hind leg white; foaled June 9, 1900; bred and exhibited by Robert Davies, Toronto; sire Prince of the Glen [2306]; dam Candour (imp.) [1656], by Macgregor (1487).

2nd, Beauty (imp.) [4784] (Vol. 23, S.) bright bay, face, off fore and hind feet white; foaled May, 1900; bred by Wm. Hunter, Garthland, Mains, Stranraer, Scotland; imported and exhibited by Smith & Richardson, Columbus, Ont.; sire, Ornament [3421] (10603); dam Flora of Garthland [3973] (9769), by Darnley (222).

3rd, Charming Sunflower [3054] bay, stripe on face, little white on fore legs, hind legs white to hock; foaled June 3, 1900; bred and exhibited by John Savage, Guelph; sire Lord Charming [2264] 7564; dam Sunlight [2279] 8303, by Prince of Eyre [1532] 8201.

4th, Lady Malcolm [3941] bay, stripe, near hind and off fore feet white; foaled May 20, 1900; bred by W. H. Coates, Claremont; exhibited by Graham Bros., Claremont; sire Granger [3168] 7255; dam Lady Malcolm (imp.) [969], by Ghillie Callum (3629).

Filly, 2 years old

1st, Startling [3551] brown, four white ankles; foaled June 27, 1901; bred and exhibited by Robert Davies, Toronto; sire Lyon Macgregor [2308]; dam Queen Esther [2750] 8460, by Prince of Quality [2173] 5648.

2nd, Queen of Roxburgh (imp.) [4790] dark brown, white ratch on face, hind legs white to pasterns; foaled June 4, 1901; bred by Jas. N. Smith, Barlae, Scotland; exhibited by Graham Bros., Claremont; sire Prince of Roxburgh [3529] (10616); dam Mary of Barlae [4964] (11989), by Flashwood [2909] (3604).

3rd, Madge of Hallcroft (imp.) [4776] (Vol. 24, S.) brown, star and small ratch, three white feet; foaled May 16, 1901; bred by Maxwell C. Muirhead, Hallcroft, Dalbeattie, Scotland; imported in 1903 by Smith & Richardson, Columbus, Ont.; exhibited by A. G. Gormley, Unionville, Ont.; sire Ornament [3421] (10603); dam Ursula [4860] (13985), by Flashwood's Best [3534] (9211).

Filly, 1 year old

1st, Belle Troon [3550] bay, blaze, white legs; foaled May 2, 1902; bred and exhibited by Robt. Davies, Toronto; sire Lyon Macgregor (imp.) [2308] (10376); dam Queen Bell [2193], by Queen's Own (imp.) [1708] (7176).

2nd, Miss Gilmour (imp.) [4457] (Vol. 25, S.) light brown, face, fore pasterns and near hind leg white, half of off hind foot white; foaled May 24, 1902; bred by W. P. Gilmour, Balmangan, Scotland; exhibited by O. Sorby, Guelph; sire Baron's Pride [3067] (9122); dam Missie of Balmangan [4460] (14226), by Lord Erskine [3603] (1744).

3rd, Fair Nellie 3rd [4820] brown, stripe, off hind foot white; foaled July 1, 1902; bred and exhibited by Jas. I. Davidson, Balsam, Ont.; sire Macqueen (imp.) [462] 3513 (5200); dam Fair Nellie 2nd [2702], by What Care I (2617).

Brood Mare, with Foal of same breed by her side

1st, Nelly Lynedoch [2603] light bay, stripe in face, nigh front ankle and hind legs white; foaled February 18, 1899; bred and exhibited by Robt. Davies, Toronto; sire King's Own [2172]; dam Nelly (imp.) [1323], by Lord Lynedoch (4530).

2nd, Baroness Montague (imp.) [4446] (Vol. 25, S.) brown, face, off fore pastern and hind legs white; foaled May 2, 1898; bred by Wm. Hood, Chapelton, Kirkcudbright, Scotland; exhibited by O. Sorby, Guelph; sire Baron's Pride [3067] (9122); dam Hermione [4447] (12504), by Prince Romeo (8144).

3rd, Nellie Rosewood [3486] bay, face and feet white; foaled October 1, 1898; bred by Major & Son, Whitevale; exhibited by John W. Cowie, Markham; sire Lord Wellington (imp.) [2962] (6981); dam Darling (imp.) [2811], by Glinna (imp.) [372] (3655).

Foal of 1903

1st, Maccorrie [3964] bay, stripe, near hind leg white; foaled June, 1903; bred and exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire Wayward Boy [2773]; dam Moss Rose [1943], by Blucher (imp.) [1264] (1960).

2nd, Nellie Flashwood [4788] bay, nigh hind foot white; foaled April 20, 1903; bred and exhibited by John W. Cowie, Markham; sire Burnbrae [2707]; dam Nellie Rosewood [3486], by Lord Wellington (imp.) [2962] 9977 (6981).

3rd, Minnie Macqueen [4795] bay, stripe, hind feet white; foaled May, 1903; bred by W. H. Coates, Claremont; exhibited by D. Pugh, Claremont; sire Macqueen (imp.) [462] (5200); dam Minnie Malcolm [3313], by Here You Are (imp.) [1844] (8692).

Mare, with two of her progeny

1st, Nellie Rosewood [3486], with progeny, Alexander Macqueen [3291] and Nellie Flashwood [4788]; exhibited by John W. Cowie, Markham, Ont.

2nd, Queen Bell [2193] bay, face and three legs white; foaled May 18, 1894; bred and exhibited by Robt. Davies, Toronto; sire Queen's Own (imp.) [1708]; dam Bar Bell (imp.) [1324].

Best Mare, any age

1st, Princess Royal [3552]; exhibited by Robt. Davies, Toronto.

Shire Horse Association

ANNUAL MEETING.

The fifteenth annual meeting of this Association was held at the Rossin House, Toronto, on February 3rd, 1903, at 11 a.m., President W. E. Wellington in the chair.

On motion the minutes of the last annual meeting were taken as read.

PRESIDENT'S ADDRESS.

By W. E. Wellington, Toronto, Ont.

At the last annual meeting I stated then I was glad to see that the Shire breed had taken a step forward, and I was very much in hopes, from the indications at that time, that the breed in Canada would come more to the front and keep the place that it should keep.

In England, as you know, the Shire breed is the dominant breed, while the Clydesdales are dominant in Scotland; at the same time, a purchaser going to England to buy a Shire horse or a Clyde will find the difference in the price. I think I am perfectly within the mark in stating the average price of the Shire in Great Britain to-day is one hundred per cent. greater than that of the Clyde. I do not wish to draw any distinction between the breeds or go into any description regarding their respective merits, but those are the facts that have a meaning, and I feel we as Shire men are hardly doing our duty towards the advancement of the breed in this country.

I do not think, for one reason, that we have got sufficient encouragement from those who are breeding horses, and this report will apply, I think, to owners of all draught and other stallions. I do not think that we receive sufficient encouragement to warrant the investments that we are called upon to make in order to bring out the best specimens of the breed; and this, to my mind, applies as well to the Clyde as to the Shire.

I am pleased at this, that the Dominion Government, through our esteemed and active friend, the Live Stock Commissioner, is making a move in the right direction, but I think this should be furthered by the Provincial legislators in giving some sort of protection to the owners of stallions. I am firmly of the opinion that a Lien Act should be passed which will enable stallion owners to recover for services of animals; the service now is affected too much to warrant putting big money into horses, but we should have at least a fair protection on those lines, and it will prove no hardship to any honest man.

I am very glad to see, while this does not bear particularly on the Shire, the action that is taken now by the Government and also by different horse societies towards the establishment of registers for the different breeds. I feel very pronounced on that subject, that we in Canada should have a National Register for all breeds of horses, cattle, sheep, and swine. The records we have are equal, if not superior, to those of the United States in the Clydesdale and Shire, taking, as we can take, the English register as our standard. There is no reason why we should not obtain the same position regarding the other classes of stock to be registered, in doing that and having our register one in which there is no flaw, we are bound to be recognized by the United States and other countries, and that recognition is denied us now. We are suffering a great deal of injustice in that respect.

Another matter I am hopeful will be taken up by the Dominion Government, and that is the imposition of a fair duty on animals coming into this country. I am sure the United States would have no ground for complaint if we passed a tariff law that was a duplicate of their own on most points ; with that large country they have little to fear in competition with us, taking the basis of population and the size of the countries into account, but they evidently are afraid of us because their tariff is a mighty stiff one while ours is so lenient. Their scrub horses are brought into this country, with all their known injury, while we are honestly trying to improve the different societies ; but I think the different societies regardless of politics should take up this matter and push it very strongly, and I am satisfied from indications and from what I have heard, the Dominion Government will be disposed to listen to us and do us justice.

There is no question about it, that the horse industry in Canada is one of the most important industries of this land, and it is only necessary to bring before any Government the claims that any industry has where it is essential to the well-being of the country to have that Government look after its interests, and I am satisfied that the horse industry will be taken care of, if we as horsemen bestir ourselves in the right direction. I think if we could devise some scheme for every man who owns a Shire, either stallion or mare, to be induced to join the Society we would make a good showing, but as a matter of fact it is being left to a few men and it is rather discouraging to feel that the necessary enthusiasm is not having the slightest effect in promoting this valuable breed.

I hope for the forthcoming year that we may devise some scheme to increase our membership and while I realize that we at present are doing a good work I think that the good work can be very much extended. I thank, you, gentlemen, for the confidence you have reposed in me in electing me a second year as President. It is now my wish to retire and make way for some one else, and I have no doubt that whoever you elect as President of this Association will have its interests at heart.

REPORT OF THE SECRETARY-TREASURER.

There has been very little change either one way or the other during the past year. We have recorded 31 pedigrees and have made 16 transfers during the year as against 40 pedigrees in 1902 and 5 transfers, but we have 26 paid members against 23 last year. There is plenty of room for more activity amongst the Shire horse men.

A new departure was taken this year by Mr. S. George Mackness of Abington Lodge, Northampton, Eng., who brought out a consignment of Shire stallions and mares. They were catalogued and sold by Walter Harland Smith at the Repository, Toronto. The sale was well advertised and fairly well attended. The stallions, six in number, averaged $409.16 and the three fillies $276.66 ; the nine horses selling for $3,285. At a sale of Shire horses at Joliet, Ill., U.S. Commodore V. sold for $3,500, a colt, stallion, 16 months for $395, and 21 mares averaged $257, the top price being $800.

At the different large shows Shires were well represented. A list of prize winners at the different exhibitions will be prepared for the Government Report. Fifty dollars has been recommended to be given at the coming Spring Stallion Show, $25 for Championship male and $25 for Championship female.

Mr. William Hendrie, Jr., and J. M. Gardhouse were appointed by the Shire Breeders' Association to attend the delegation at Ottawa, held a short time ago, on behalf of the Shire horses, to ask for increased duties on horse brought in from the United States.

This Committee together with the Ottawa Committee succeeded in drawing up a prize list and assisted in getting a grant of $1,500 for the Ottawa Spring Show.

FINANCIAL STATEMENT.

For Year Ending December 31st, 1903.

RECEIPTS.		EXPENDITURE.		
Cash on hand	$ 72.68	Postage, stationery, etc.		$ 17.11
26 members at $2	52.00	Auditor and stenographer		4.00
Registration fees to date	12.45	Grant. cup for stallion show		30.00
		Commisison on—		
		31 pedigrees at 35c.	$10.85	
		16 pedigrees at 15c.	1.60	
				12.45
		Balance on hand		73.57
	$137.53			$137.13

I hereby certify that I have examined the books of the Shire Horse Association and the above statement is correct and in accordance therewith.

CHAS. F. COMPLIN, Auditor,
HENRY WADE, Secretary-Treasurer.

Toronto, Jan. 20th, 1904.

OFFICERS FOR 1904.

Honorary President—F. W. Hodson, Live Stock Commissioner, Ottawa.
President—W. E. Wellington, Toronto.
1st Vice-President—Jas. M. Gardhouse, Weston.
2nd Vice-President—Wm. Hendrie, Jr., Hamilton.

Vice-Presidents for the Provinces :

Quebec—Robert Ness, Howick.
Nova Scotia—Hon. T. R. Black, Amherst.
Territories—G. W. Peterson, Calgary.
New Brunswick—T. A. Peters, Fredericton.
Manitoba—George Greig, Winnipeg.
British Columbia—S. R. McNeil, Vernon.
P. E. Island—Hon. Frank Hassard, Charlottetown.

It was resolved that Mr. Peterson be asked to attend the week of meetings next year, and Mr. Hodson agreed to pay his expenses if he came.

Directors :

W. S. Spark, Ottawa ;
Wm. Wilkie, Toronto ;
Jas. Henderson, Belton ;
Jas. Dalgety, London ;
John Gardhouse, Highfield ;
W. Bawden, Exeter ;
E. C. Attrill, Goderich.

Delegates to Fairs and Associations :

Industrial Exhibition—John Gardhouse and James Dalgety.
Western Fair—H. Wade and E. C. Attrill.
Central Exhibition, Ottawa—F. W. Hodson and W. S. Spark.
Horse Breeders' Association—J. M. Gardhouse and William Wilkie.

Auditor—C. F. Complin, London.

Secretary-Treasurer—Henry Wade, Parliament Buildings, Toronto.

RESOLUTIONS.

On motion it was resolved : " That this Association give a grant of $25 towards the Spring Stallion Show in Toronto, and $25 to the Ottawa Spring Horse Show."

Mr. F. W. Hodson, outlined the result of his official visit to St. Louis and also explained to the breeders the exact condition of the regulations existing between the United States and Canada, and produced letters from the United States Department of Agriculture substantiating same.

"That the Shire Horse Association, in annual meeting assembled, endorse the action of our representative at the meeting held in the Rossin House, Nov. 11th, 1903, and also the position taken by the Dominion Live Stock Commissioner in relation to the St. Louis Exposition." Carried.

"That the Shire Horse Association, in annual convention consider it desirable to establish a National Live Stock Association, and that we forthwith appoint delegates to same." Carried.

Delegates : J. M. Gardhouse, Weston, Ont.; John Gardhouse, Highfield, Ont.; Jas. Dalgety, London, Ont.; Robert Ness, Howick, Que.

Mr. Hodson stated that if the Secretary would write him and say the Association was short of funds, but were very much interested in this work and ask for a grant of $100 he would get that amount for them.

Mr. W. S. Spark was called upon to address the meeting and said as he was going to speak in the evening he would only make a few remarks. He stated he had been around through Quebec a great deal and found all through there the substance of the Draught horse was far too light, and the purchasers of Heavy Draught horses should get heavier horses, say from sixteen hundred pounds up. If those could be bred he had not the slightest doubt, but the farmer could make it pay, and with that object in view he was getting one or two friends to go in with him and they intended importing some very good Sires, not only stallions, but also mares, and he assured them that everything they brought out would be absolutely sound.

Mr. Hodson said the price of Shires in Great Britain—the average price—was higher than the Clyde, and they were so high it was almost prohibitory for the ordinary person to import them.

On motion it was resolved : "That as Mr. W. S. Spark contemplated going to England soon he be authorized to have recognition of the English Shire Horse Association for the purpose of securing any information which might be of benefit to this Association."

LIST OF MEMBERS.

Anderson, J. J.....Dominionville.
Attrill, E. C.....Goderich.
Bawden & McDonell...Exeter.
Cochran, L. W.....Crawfordsville, Ind. U.S.
Crossley, H. N. .....Rosseau.
Dalgety Bros.....London.
Drury, F.....Charing Cross.
Edwards & Co., W. C. Rockland
Ferguson & Son.....Carlow.
Gardhouse, C. S.....Highfield.
Gardhouse, J. M.....Weston.
Gardhouse, John.....Highfield.
George & Son, H.....Crampton.
Hay, Geo.....Lachute, Que.
Hendrie, Wm., Jr.....Hamilton.
Henderson, Jas.....Belton.
Hodson, F. W.....Ottawa.
Hogate, J. B.... .....Sarnia.
Jackson, Geo..... ....Mount Charles.
Messenger, D.....Guelph.
Mossop, Wm.....St. Marys.
Smith, W. Harland....Toronto.
Spark, W. S..... .Ottawa.
Smith, C. P.....Hagerstown, Md.
Wilkie, Wm. .....Toronto.
Wellington, W. E.....Toronto.

PRIZE WINNING SHIRES AT THE TORONTO DOMINION EXHIBITION, 1903.

Stallion, 4 years old and upwards

1st, Chewton Prince Harold 3rd (imp.) [377] (20343) bay, star, hind fetlocks white; foaled 1899; bred by G. F. King, Chewton, Eng.; imported and exhibited by J. M. Gardhouse, Weston, Ont.; sire Prince Harold (14228); dam Chewton Violet (25641), by Normoor Black Prince (12015).

2nd, Mars (imp.) [275] (17103) bay, white spot on face, white hind legs; foaled 1897; bred by W. C. Salt, Wellington, Burton-on-Trent, England; imported and exhibited by Morris & Wellington, Fonthill, Ont.; sire Vulcan (4145); dam Galatea (10048), by Royal Albert (1885).

Stallion, 3 years old

1st, Bank Statesman (imp.) [352] bay, stripe, hind legs white; foaled 1900; bred by B. Thomas, Westbury, Shrewsbury, England; imported and exhibited by Morris & Wellington, Fonthill, Ont.; sire Carltonie (13946); dam Brown, by Potentate (12086).

Stallion, 2 years old

1st, Coronation (imp.) [354] black, white range, near hind foot white; foaled 1901; bred by J. S. Cock, Spalding, England; imported and exhibited by Morris & Wellington, Fonthill, Ont.; sire Lockinge Harold (16779); dam Blossom (30909), by Bar None William (10963).

2nd, General Favorite (imp.) [353] black, little white on face, off hind leg white; foaled in 1901; bred by G. L. Morris Thorne, Peterborough, Eng.; imported and exhibited by Morris & Wellington, Fonthill, Ont.; sire Lockinge Harold (16779); dam Fenland Smiler (23695), by Bar None William (10903).

Stallion, 1 year old

1st, Anthony Waterer [376] brown, stripe, both fore and off hind stockings white; foaled 1902; bred and exhibited by Morris & Wellington, Fonthill, Ont.; sire Mars (imp.) [275]; dam Trilby [111], by Pride of Hatfield (imp.) [256] (13103).

Stallion, any age

1st, Bank Statesman (imp.) [352]; exhibitors, Morris & Wellington, Fonthill, Ont.

Filly, 3 years old

1st, Moulton Marrianne (imp.) [164]; brown, white range, off hind leg white; foaled in 1890; bred by E. B. Bettison, Gedney, Holbeach, Eng.; imported and exhibited by Morris & Wellington, Fonthill; sire Lockinge Harold (16779); dam Marianne (12893) by Salisbury (5324).

2nd, Orphan Girl [154] bay, star, off hind fetlock white; foaled May, 1900; bred and exhibited by J. M. Gardhouse, Weston; sire Darnley (imp.) [183] (3585); dam Queen of Highfield [117], by King of The Castle (imp.) [71] (3171).

Filly, 2 years old

1st, Lancashire Lass 2nd [158] light bay, white face, white on off fore and near hind legs; foaled spring 1901; bred and exhibited by Morris & Wellington, Fonthill; sire Mars (imp.) [275] (17103); dam Leta [101], by Chieftain 2nd (imp.) [194] (5723).

Filly, 1 year old

1st, Eva Retka [183] bay, stripe, off fore foot and off hind leg white; foaled 1902; bred and exhibited by Morris & Wellington, Fonthill; sire Mars (imp.) [275] (17103); dam Beatrice (imp.) [97], by Engineer 2nd (9300).

2nd, Crispa [184] light bay, star, off hind foot white; foaled 1902; bred and exhibited by Morris & Wellington, Fonthill; sire Mars (imp.) [275] (17103]; dam Pearl of Welland [100], by Chieftain 2nd (imp.) [194] (5723).

Brood Mare, with Foal of same breed by her side

1st, Rose [145] bay, stripe in face, white off hind foot; foaled 1898; bred and exhibited by Morris & Wellington, Fonthill; sire Pride of Hatfield (imp.) [256] (13103); dam Queen [65], by Chieftain 2nd (imp.) [194] (5723).

2nd, Violet [126] bay, star, hind fetlocks white; foaled 1897; bred by Morris & Wellington, Fonthill; exhibited by John Gardhouse, Highfield; sire Pride of Hatfield (imp.) [256] (13104); dam Elsie Morin (imp.) [34] (3196), by Welton Tom (3395).

Foal of 1903

1st, Lady Penzance [182] bay, stripe, near fore and near hind feet white, off hind stocking white; foaled 1903; bred and exhibited by Morris & Wellington, Fonthill; sire Mars (imp.) [275] (17103); dam Beatrice (imp.) [97], by Engineer 2nd (9300).

2nd, Fair Rosamond [1811] bay, star, off fore and off hind feet white; foaled 1903; bred and exhibited by Morris & Wellington, Fonthill; sire Mars (imp.) [275] (17103); dam Rose [415], by Pride of Hatfield (imp.) [256].

3rd, Viola [185] bay; foaled April, 1903; bred and exhibited by John Gardhouse, Highfield; sire Pride of Morning [304]; dam Violet [126], by Pride of Hatfield (imp.) [256].

Mare and two of her progeny

1st, Beatrice (imp.) [97], Eva Retka [183], Lady Penzance [182]; exhibitors Morris & Wellington, Fonthill, Ont.

Best Mare, any age

1st, Moulton Marrianne (imp.) [164]; exhibitors Morris & Wellington, Fonthill, Ont.

Harness, Hunter and Saddle Horse Society

ANNUAL MEETING.

The fourth annual meeting of the Harness, Hunter and Saddle Horse Society of Canada, was held in the Rossin House, Toronto, February 2nd, 1904, 8 p.m. President Walter Harland Smith in the chair.

PRESIDENT'S ADDRESS.

By Walter Harland Smith, Toronto.

I have the honor of again congratulating the Society upon a successful year, the third and the most gratifying one in its history, showing a large increase in membership, and enthusiasm. The feature of the Society's doings during the year was the Open Air Horse Show held in July, under the auspices of the Home Comers Festival, who were most liberal in defraying the entire expense and cost of the medals, etc. It was the intention of the Society to have had a winter parade, and preliminaries were being arranged when our worthy secretary, Mr. Good, upon whom we depend greatly for the success of all our efforts, fell ill and the matter was dropped. It is to be hoped that another year we will carry out this suggestion, which would no doubt be a source of great pleasure, and interest to our members, and the public. At the meeting of our executive committee last week, it was decided to hold an Open Air Horse Parade during the coming season, and a resolution was passed to that effect, the date suggested being June 23rd. This matter will be brought before you, and it is hoped that it will meet with your approval. Our Society though young is strong and composed of the right material to carry out any undertaking successfully, and by commencing in a modest way and doing well whatever we attempt, we will grow and succeed, and in years to come will develop into a powerful organization able to take up the responsibility of many important matters of interest to the breeders as well as the lovers of the Harness, Hunter and Saddle horse.

It has been suggested by one of our members that there is a great need of a Standard bred registration in Canada, and that our Society would be financially benefited,

and do a great service to our country by assuming the responsibility of the matter at once, and adopting a foundation basis for such a publication. This is much needed and should be discussed this evening. The matter of the registration of thoroughbreds is also an important one. I think this should be taken up by the Jockey Club.

The matter of live stock registration of horses as well as cattle should be taken up by the Dominion Government, who should demand their recognition by all nations wishing to do business with Canada. But if the Government refuse to recognize the importance of it then we should go on ourselves with one or two of the most important branches of it.

It is encouraging to note the continued demand for horses of all classes and while there has no doubt been a large increase in breeding during the past few years. The great scarcity of high class carriage and saddle horses ready for market is deplorable, and it is hoped that every farmer and breeder will for the sake of nothing but the certain profit of it breed every mare in his possession to the best Shire he can find. There is every indication that this great country of ours is in for a long term of marvellous prosperity, and there seems no limit to the demand for all classes of horses at good paying prices. Over seven thousand horses were sold at the Repository last year, being nearly a third more than the previous year, and the prices were fully fifteen per cent. better than in the year previous. Farmers and breeders should be advised to use the thorougbred sire more than they do, one reason why some are not as successful with thoroughbred sires as they should be is that they imagine they should use light breedy mares. This is a great error, use your big strong general purpose mares to thoroughbred sires and a good seller will always be the result. This is the experience of twenty-one years' selling in the leading market of Canada and is not "hot air." Another important point that breeders are often careless about is giving at least the name of the sire in making entries at all shows. It is of much importance in many ways, and should be done without fail.

In retiring from the presidency of the Society I can assure you it is not with the intention of severing my connection with it. I hope at all tims to be able to assist and support every project of the Society, which I am proud of having been honored as President for the past two years. Thanking you all and especially the executive committee, and officers of the Society for their splendid support and co-operation during my term of office, I will now conclude.

SECRETARY'S REPORT.

Members of the Society will be gratified to hear that the past year of 1903 was the most successful and eventful in its existence. After the annual meeting last year following a banquet most handsomely given by the President, there was a large accession to the membership, which now numbers close upon 70. At that meeting it was decided to give a gold medal, value $50, for the best harness horse at the Toronto Industrial Exhibition, 1903, which was won by Mr. Geo. Pepper; second Vice-President, T. A. Crow, generously volunteered to give a cup of the same value for the best saddle horse at the same exhibition. This was won by Mr. Robert W. Davies. Alderman O. B. Sheppard, First Vice-President, was also good enough to offer a cup for the best in a class at the exhibition to be decided by the President and two Vice-Presidents.

I regret to have to announce the death in the early part of the year of an esteemed member in the person of Mr. T. B. Taylor, in whose memory a resolution was passed at a meeting held in the King Edward Hotel to arrange preliminaries for the open air show that was held on July 4th in the Queen's Park in connection with the Home Comers' Festival. The show was undoubtedly the event of the Festival and was in every way a brilliant success. In this connection I would like to suggest that the Society by resolution or in any way thought fit recognize the kindness of Chairman Noel Marshall and the Festival Committee on that occasion and pay a well deserved compliment to Mr.

Stewart Houston, whose attention, energy and consideration in making the show a success were unbounded, while he also ever had in view the desires and aims of this Society. His Worship the Mayor and the City Council also warmly supported and endorsed the show, the former in expressing his satisfaction saying that he hoped it would be made an annual affair. The cost was upwards of $1,000, all of which was met by the Festival Committee. Although there was a postponement for a day the public manifested its approval by assembling in the park in numbers that have been variously estimated at from sixty to a hundred thousand. It is certain that so large a crowd never previously attended a gathering in this city within the same space. So admirable were the arrangements at this the first open air horse show held in the city that 23 classes were judged and disposed of in the course of two hours. So great was the success that I have to report that at an executive meeting held on Monday, the 25th inst., in the Repository on Simcoe street, it was resolved that another show and parade should be held this year. A committee on arrangements will be necessary, which you will be requested to appoint this evening.

Other matters that will be brought before you refer to the registration and inspection of stallion, to the subsidizing of the same by guaranteeing a number of mares, and to making representations to the Government relative to taking certain steps having for their object the further development and improvement of the horse industry. I might add that I have become possessed of some information regarding the scheme adopted in Ireland for the encouragement of horse breeding and am of opinion that some such plan could be advantageously adopted in Canada.

A suggestion that I once made to the Provincial Government might commend itself to the Society, namely, that a fee of $10 a day be exacted from an association racing four days or less at one period, $25 a day from those racing fifteen days or less down to four, and $50 a day for over fifteen and up to including 25, and $100 a day over 25, the proceeds to be devoted to the giving of premiums at shows and fairs for harness, hunt and saddle horses. As you are doubtless aware in New York State a tax is levied of five per cent. on the gross gate receipts of racing associations from which a handsome sum is realized which is used in encouraging the horse at agricultural fairs. The fee I suggest would not be nearly so productive, but at the same time several thousand dollars would be raised that could be made to serve a very practical purpose.

I am further of opinion that the time has arrived when the Government might authorize a representative to tour Europe and report upon the state of the horse markets there and upon what is being done for the encouragement of the same.

I further venture to suggest that a resolution of regret be passed at the illness of Mr. E. King Dodds, editor of the Canadian Sportsman, and a firm friend of the horse.

Members of the Society are doubtless well informed on the proceedings of the deputation that waited upon the Government recently regarding violations of Canada's all too liberal customs laws. Probably they will regret to hear that this Society was not represented. It is not to be doubted that they are in general sympathy with the views there set forth especially by Mr. Wm. Stewart, of Regina, N.W.T., who has since passed to his long home.

It will be in the recollection of most of the gentlemen here that at a meeting of the Canadian Horse Breeders' Association a resolution was passed that a company be formed to erect a building for horse shows, etc. It would perhaps be in order for this Society to ask what has been done to carry out this resolution.

All of which is submitted,

H. J. P. Good, Secretary.

FINANCIAL STATEMENT.

For the Year Ending December 31st, 1903.

Receipts.		Expenditure.	
Balance from 1902 .. ..$	23.75	Grant to Mr. Good ....$	25.00
67 members at $2..	134.00	Postage and stationery	11.25
		Seal $10, cup $50	60.00
		Balance on hand	61.50
	$157.75		$157.75

I hereby certify that I have examined the books and accounts of the Harness, Hunter and Saddle Horse Society and find the above statement correct and in accordance therewith.

CHAS. F. COMPLIN, Auditor. HENRY WADE, Treasurer.

Toronto, Ont., January 20th, 1904.

Mr. F. W. Hodson, outlined the result of his official visit to St. Louis, and also explained to the breeders the exact condition of the regulations existing between the United States and Canada, and produced letters from the United States Department of Agriculture substantiating same.

After some discussion on the matter, on motion it was resolved: "That the Harness, Hunter and Saddle Horse Society of Canada, in annual meeting assembled, endorse the action of our representatives at the meeting held in the Rossin House, November 11th, 1903, and also the position taken by the Dominion Live Stock Commissioner in relation to the St. Louis Exposition."

Mr. Hodson also outlined the scheme for the establishment of a National Live Stock Association, and on motion it was resolved: "That this Society is strongly of the opinion that Canada should have a National Registration for all breeds of horses, and that a copy of this resolution be sent to the Minister of Agriculture for the Dominion and to the Horse Breeders' Association."

Delegates appointed to attend national meeting: Walter Harland Smith, Toronto, Ont.; Ald. O. B. Sheppard, Toronto, Ont.; H. J. P. Good, Toronto, Ont.

RESOLUTIONS.

The minutes of the previous meeting were read and confirmed, and the Treasurer read the financial statement, which was adopted.

The Secretary then presented his annual report, and on motion it was resolved:

"That the Secretary's report be adopted, and a copy of it be sent to the Dominion Live Stock Commissioner, as it is a very important document, and should come before the members of the Government."

"That a vote of thanks from this Association be sent to the President and Manager of the Home Comers' Festival for their generosity and kindness to the Society in defraying all expenses of medals and prizes, which amounted to over a thousand dollars." Carried

Registration and Inspection of Stallions: Ald. O. B. Sheppard said this is one of the things the Society should do, and if they did that alone it would justify its existence. He thought they could take the American standard of registration, and have that as a foundation for the Canadian book; those that were in Canada with American certificates could be registered in the Canadian book without a fee, or a very small

registration fee, then their progeny could be recorded at the usual rates, and they would have in the Dominion a Register for Standardbreds of their own. He was of the opinion this was one of the matters the Canadian Government should take up, as it was of great importance to Canada. At present there were a hundred standardbred stallions and mares in Canada, and that would form a nucleus of the Standardbred Register here. They could adopt both the English and American thoroughbred standard, and that would form a nucleus of the Thoroughbred Register.

"That the President and Mr. Good be a committee to draw up a resolution to forward to Mr. E. King Dodds, regretting his illness." Carried.

OPEN AIR HORSE PARADE.

Mr. Good stated that at a meeting of the Executive the matter of an open air horse parade was discussed, and it was the unanimous opinion it should be held. The general opinion was the expenses could be made very light, and it could take place either in the park or at the Exhibition grounds, as might be determined. In his opinion they should pay more attention to the tradesmen's classes; the grocers and butchers all have a half holiday on Wednesday afternoon, and they could have a parade in the park and pass on up to the Exhibition grounds, where the judging could take place. This would not in any way interfere with the Horse Show held in the Armouries, and a parade on the streets of this sort would show the business men what kind of horses were being driven, and give them some encouragement. Mr. Good thought they could easily get three hundred bronze medals, and give each person who entered in the parade one medal, then in addition give the best turnout a diploma and ribbons. He thought if they got the Exhibition they could charge 25 cents admission to the grand stand.

Mr. Pepper: In reference to what Mr. Good has said, I might say they have a working horse parade in Boston, and each man is given a dollar or two dollars, whatever the case may be.

Mr Smith: I think Mr. Pepper's suggestion a very good one. I think the owners would be very glad to give a donation to have the drivers take better care of the horses and traps. It is a question whether it would not be better to keep to a cart horse parade than to society.

Mr. Sheppard said he did not like the idea of making a charge, as we could go to the City Council, and they would give the society a reasonable amount of money to accomplish what they were trying to accomplish.

Dr. Peters thought they should not charge, and the show should be confined to those who use their horses in their business, and all the people who use their horses for pleasure would be glad to subscribe.

It was then resolved that the Board of Directors act as a committee to further the scheme in connection with the Open Air Horse Parade.

OFFICERS FOR 1904.

President—Walter Harland Smith, Toronto.

First Vice-President—Ald. O. B. Sheppard, Toronto.

Second Vice-President—T. A. Crow, Toronto.

Directors—Geo. Pepper, Toronto; J. J. Dixon, Toronto; Dr G. A. Peters, Toronto; W. E. Wellington, Toronto; S. B. Fuller, Woodstock; H. M. Robinson, Toronto; Robert Bond, Toronto; W. T. Merry, Toronto; Thos. Hodgson, Toronto; Robert W. Davies, Toronto.

Secretary—H. J. P. Good, Toronto.

Hon. Secretary and Treasurer—Henry Wade, Toronto.

Representatives to Canadian Horse Breeders' Association—W. E. Wellington and O. B. Sheppard.

Representatives to Industrial Exhibition Association—W. Harland Smith and W. T. Merry.

Mr. Geo. Pepper complained that the Industrial Exhibition did not have a dog cart class and gig class this year, the same as last year.

Mr. Wellington said if any person thought the Industrial Board had made a mistake he should write and point it out, and they would try and do what they could to make it right.

Moved by J. J. Dixon, seconded by W. T. Merry: "That this Society regrets the unfortunate circumstances that led to Messrs. Crow and Merry being refused admission to show their horses at the Toronto Industrial Exhibition, and that the Directors of the Exhibition be asked to reconsider their decision." Carried.

On motion of H. M. Robinson, seconded by S. B. Fuller, it was resolved: "That the Secretary, Mr. H. J. P. Good, be granted the sum of $50 as a slight recognition of his efficient services in the past."

The meeting then adjourned.

MEMBERS.

Barron, Geo., 728 Yonge St., Toronto.
Beardmore, G. W., 136 Beverly St., Toronto
Beck, Adam, London.
Browne, W. C., Meadowvale.
Bailey, W. D., Toronto.
Bond, Robert, 19 Sheppard St., Toronto.
Bristol, Ed., 103 Bay St., Toronto.
Buckle, W., 219 Major St., Toronto.
Colville, W. H., 25 Front St. E., Toronto.
Cox, E. S., 8 Wellesley Place, Toronto.
Crossley, H. N., 91 Woodlawn Ave., Toronto
Crow, T. A., 619 Yonge St., Toronto.
Crutchley, T. O., Weston.
Cox, H. C., Toronto.
Case, Geo. E., Toronto.
Dalgety Bros., London.
Davies, R. W., Todmorden.
Davies, R., Toronto.
Dinnis, A., Simcoe St., Toronto.
Dixon, J. J., 42 King St. W., Toronto.
Doane, Fred, 621 Yonge St., Toronto.
Doane, J. H., 621 Yonge St., Toronto.
Donley, W. T., 71 Richmond St. W., Toronto
Dunn, T., Mimico.
Fuller, S. B., Woodstock.
Edwards & Co., W. C., Rockland.
Gilmour, J. G., M.D. Central Prison.
Hartshore, H., 72 King St. E., Toronto.
Hillock, A. F., Brampton.
Hodgson, Thos., V.S., Toronto.
Hodson, F., jr', Toronto.
Hendrie, Wm., jr., Hamilton.
Hodson, F. W., Ottawa.
Lawrence, W. A., Milton.
Macabe, T. J., Toronto.
Merry, W. T., 36 Temperance St., Toronto
Murray, J., 621 Yonge St., Toronto.
McBride, S., 249 Bathurst St., Toronto.
McFarren, Jas., Toronto.
McCartney, T. H., Thamesford.
Oille, J. L., 59 Yonge St., Toronto.
O'Neill, D., London.
O'Neill, J. R., Cobourg.
Osborne, — Mail Building, Toronto.
Peters, Dr. G. A., 102 College St., Toronto
Pepper, Geo., 253 Huron St., Toronto.
Piper, E., 18 Bernard Ave., Toronto.
Smith, Dr. A., Ont. Vet. College, Toronto
Smith, Dr. D. K.
Sheppard, Ald. O. B., Toronto.
Robinson, H. M., Rice, Lewis Co., Toronto
Rolston, F., c/o John MacDonald, & Co., Toronto.
Scott, W. N., Milton.
Smith, W. A., Downsville.
Smith, W. H., "Grand's," Toronto.
Stewart, Dr., Ont. Vet. College, Toronto.
Strong, Milton, Newtonbrook.
Taylor, R., Copland Brewing Co., Toronto
Walsh, Wm., Dom. Exp. College, Ottawa
Wellington, W. E., 49 Wellington St., Toronto.
Young, W. A., M.D., 145 College St., Toronto.

Additional List of Members who joined in 1903.

Beers, John.....140 Niagara St., Toronto.
Bond, Dr. J .... "
Cuthbert, John .....13 Alice St., "
Clark, Dr. Harold.....
..... 104 Temperance St., "
Elmsley, Major ..... "
.....Stanley Barracks, "
Foy, John.....Niagara Nav. Co., "
Hendrie, Murray.....Hamilton.
Houston, Stewart..Massey Hall, Toronto
Heaven, W. T. ....1495 King St., "
Lovell, R. G.....56 Yonge St., "
Milne, Jas..... "
Sullivan, Ed.....Leader Hotel, "
Straubenzie, Capt..... .....
..... . Stanley Barracks, "
Tomlin, H. C.....Rathburn St., "
Torrance, G. W....Albany Club, "

Canadian Pony Society

The third annual meeting of the Canadian Pony Society was held at the Rossin House, Toronto, on Wednesday, February 3rd, 1904.

In the absence of the President, Mr. H. M. Robinson was voted to the chair.

On motion, the minutes of the last annual meeting were taken as read.

The Treasurer read the financial statement, which was adopted.

REPORT OF THE SECRETARY.

The Secretary, Mr. H. Gerald Wade, in his report, mentioned that he had succeeded in getting for the Society the support of several prominent horsemen. He was pleased to report that at the last Canadian Horse Show, the Montreal Horse Show, Winnipeg, Man., and the Dominion Exhibitions the exhibits in the pony classes outclassed, both in numbers and quality, anything ever seen before in these classes. It seemed to him that there were many ways in which the Society might be made use of if the members would but take a more active interest in it. Ponies were year by year becoming more valuable and useful, and, therefore, were also becoming worthy of more encouragement. It was, therefore, befitting that the members should be up and doing.

Among the matters that might advantageously be considered would be to appoint a committee to co-operate with the Harness, Hunter and Saddle Horse Society in their endeavors to hold a Midsummer Open Air Horse Parade. He would also suggest that the Board of Directors should endeavor to secure two representatives to the Dominion Exhibition.

GENERAL BUSINESS.

The Secretary was requested to secure the names of the winners of the Canadian Pony Society's cups, and have them printed in the annual report.

The idea of the Harness, Hunter and Saddle Horse Society for a Summer Horse Show and Parade was taken up and discussed by Messrs. H. J. P. Good, E. T. Campbell, H. M. Robinson.

S. McBride, A. Taylor, and the Secretary and the Board of Directors were appointed a committee to co-operate with the committee from the other society.

Considerable discussion took place on the resolution that the Society should present a request to the Industrial Exhibition Board asking that the prizes for ponies be placed more nearly on a level with those given to other breeds. Mr. Robert Miller, Mr. E. T. Campbell, Mr. S. McBride all spoke on this subject. Mr. Campbell explained that the reason for this is that an expensive equipment is necessary for exhibiting ponies in proper fashion, and the prizes as now given are far too small to induce the average pony owners to go to the expense of showing.

RESOLUTIONS.

"That the matter of grants to exhibitions be left to the Board of Directors of this Association." Carried.

Moved by E. T. Campbell, seconded by R. W. Davies: "That the Directors of the Industrial Exhibition Association be requested to have the money prizes increased in the pony classes so as to be on a par in value with the other horse classes." Carried.

Moved by A. Taylor, seconded by W. N. Wade: "That the Canadian Pony Society co-operate with the Harness, Hunter and Saddle Horse Society in their endeavors to bring to a successful issue the Midsummer Open Air Horse Parade." Carried.

On motion it was resolved: That the Board of Directors should revise the by-laws and constitution of this Society.

It was resolved: "That the Canadian Pony Society, in annual convention, consider it advisable to establish a National Live Stock Association, and that we forthwith appoint delegates to same." The following delegates were then appointed: H. M. Robinson, President; H. Gerald Wade, Secretary.

OFFICERS FOR 1904.

President—H. M. Robinson, Toronto.
1st Vice-President—G. V. Foster, Toronto.
2nd Vice-President—R. Miller, Stouffville.
Hon. Secretary—H. Wade, Toronto.
Treasurer—A. Taylor, 100 Baldwin Street, Toronto.
Secretary—H. Gerald Wade, Toronto.

Directors:—R. W. Davies, W. N. Wade, F. Hodgson, Dr. J. A. Mills, E. T. Campbell, Geo. Barron, Capt. C. Harbottle, Toronto; Adam Beck, M.P.P., London; E. C. H. Tisdale, Beaverton.

Honorary Directors:—R. Beith, M.P., Bowmanville; W. H. Knowlton, Major A. B. Lee, H. J. P. Good, H. Wade, Toronto.

DIRECTORS' MEETING.

A meeting of the Directors of the Canadian Pony Society was held at the King Edward Hotel Toronto, on Saturday, February 13th, 1904, at 8 p.m.

The Secretary read the minutes of the last meeting. A letter was read from Clayton Peterson, of Guelph and Prince Albert, N.W.T., asking for the names of some persons breeding ponies.

Some slight amendments were made to the constitution.

The Secretary announced that since the annual meeting the membership had increased very much, over thirty new members being added to the membership roll. The names of pony breeders from Montreal and several places in Qubec, Ontario, Winnipeg, and the Northwest Territories were read, and the Secretary was instructed to hand the list to the Treasurer, so that letters should be sent asking these gentlemen to join the Society.

Model prize lists for pony classes were drafted and forwarded to the Directors of the Canadian Horse Show and the Industrial Exhibition, respectively.

Moved by E. T. Campbell, seconded by Dr. Mills, and carried: "That the Directors of the Canadian Pony Society instruct their delegates to the National Live Stock Convertion to answer these questions, as follows:

(a) Should the Canadian records of pure bred stock be national in character and scope? Answer—Yes.

(b) By whom and how should they be conducted? Answer—By the Secretary and Editor of the Association, under the direction of their officers.

(c) Should there be more than one record for one breed in Canada? Answer—No.

(d) Should an attempt be made to amalgamate Canadian and American records, so that there may be but one recognized record for each breed in North America? Answer—No

(e) Should records conducted by joint stock companies be accepted as desirable? Answer—No.

And that this meeting also instruct their delegates to request the N.L.S. Association to allow the stamp of the National Live Stock Association to appear on all publications and stud books of this Society, so as to make it national in character, and that this Society be allowed representation on the Board of the National Live Stock Association.

WINNERS OF CHALLENGE CUPS.

The following are the names of the winners of the Canadian Pony Society Challenge Cups:—1900, Misses Gooderham; 1901, Miss Ames; 1902, F. Maher; 1903, Wm. Walsh.

PRIZE MONEY GIVEN TO PONY CLASSES.

The following is a list of number of Classes and amount of Prize Money given to Pony Classes at the Canadian Horse Show, Toronto, from 1899 to 1904:—

1899— 3 Classes	$ 75
1900— 3 Classes	75
1901— 2 Classes	50
1902— 3 Classes	75
1903— 6 Classes	170
1904—11 Classes; $345 cash, $150 plate; total,	495

CONSTITUTION.

I. The name of this Society shall be the Canadian Pony Society.

II. The objects for which this Society is established are: (a) To promote the breeding of ponies. (b) To compile and publish a Stud Book. (c) To assist in holding horse shows, parades, etc., and to offer prizes and to do all such other lawful things as may be incidental or conducive to the attainment of the above objects or any of them.

III. The Society shall meet annually at such time and place as the President and Secretary shall determine upon. Seven members of the Society, including the President and Secretary, may constitute a quorum for the transaction of the business of the Society.

IV. (1) Any person may become a member upon being recommended by any two members, and paying the Treasurer the sum of $1, to whom shall be given a certificate of membership signed by the Secretary or Treasurer.

(2) Any member being charged with wilful misrepresentation of any animal owned or bred by himself, or charged with any other dishonorable conduct, if such charge is fully sustained, the Board of Directors may suspend such member until the next meeting, at which time, after full hearing of the facts, said member may be expelled by a two-thirds vote of the members of the Society present.

V. (1) The officers of the Society shall be a President, Vice- President, Second Vice-President, Secretary (and Assistant or Honorary Secretary), Treasurer, and a Board of nine Directors, shall be elected for one year, or until their successors are appointed.

(2) The President shall preside over all meetings of the Society and of the Board of Directors, and shall perform all duties incumbent upon the presiding officer.

(3) In case of absence or disability of the President, or any case of vacancy of this office, the Vice-President or Second Vice-President shall fill the office, with the same powers and authority.

4. The Secretary shall have charge of all books, papers, Stud Books, records and correspondence of the Society, and shall hold them subject to the inspection of any member thereof, his salary to be an amount fixed by the Board of Directors.

(5) The Treasurer shall have charge of the funds of the Society, and pay all accounts approved by the Board.

VI. (1) The Board of Directors, subject to the control of the Society, as determined by a general meeting of the members of the Society, shall exercise all powers and perform all the duties of the Society, and shall have power to do all such things as may be incidental or conducive to the attainment of the objects of the Society mentioned in the Constitution.

(2) The Directors may from time to time regulate the nature, form and contents of, and also the terms and conditions as to entries in, and also the time and mode and terms of issue, of any publication of the Society, and all arrangements and details connected therewith, and in particular they shall have power, from time to time to fix and alter the price of any publication of the Society, and the charges to be levied for the insertion therein of entries relating to ponies and other matters.

(3) All cases of suspected or doubtful pedigrees of ponies, and all cases of alleged misrepresentation relating to the same which may be brought under the notice of the Secretary shall be dealt with by the Board of Directors, and their decision shall be final.

VII. The Constitution may be amended at any meeting of the Society, annual or special, by a vote of two-thirds of the members present. Notice of proposed amendments shall be mailed to each member thirty days before such meeting.

MEMBERS, CANADIAN PONY SOCIETY, 1903 AND 1904.

H. Wade	Toronto.
W. H. Knowlton	Toronto.
J. R. Robertson	Toronto.
Adam Beck, M.P.P.	London.
E C. H. Tisdale	Beaverton.
R. Graham	Claremont.
R. Miller	Stouffville.
R. Beith, M.P.	Bowmanville.
W. S. Spark	Ottawa.
R Bond	Toronto.
Geo. Davies	Toronto.
W. H. Clubb	Toronto.
James Murray	Toronto.
A. Pudsey	Toronto.
Dr. J. B. Hall	Toronto.
T. E. Knowlton	Toronto.
E. B. Clancy	Toronto.
John Garrett	Toronto.
Wm. Smith	Columbus.
John Bright	Myrtle.
Peter Christie	Manchester.
O. Sorby	Guelph.
Thos. Graham	Claremont.
Geo. Pepper	Toronto.
Dr. J. A. Mills	Toronto.
H. R. White	Toronto.
Capt. C. T. Van Straubenzie	Toronto.
Col. F. L. Lessard	Toronto.
A. H. Reed	Toronto.
J. H. Moss	Toronto.
Major J. H. Mitchell	Toronto.
Wm. C. Bailey	Toronto.
J. J. Dixon	Toronto.
Wm. T. Pember	Toronto.
G. V. Foster	Toronto.
Geo. Barron	Toronto.
E. B. Kemp	Toronto.
R. W. Davies	Toronto.
W. N. Wade	Toronto.
T. McGregor	Toronto.
Capt. C. Harbottle	Toronto.
H. J. P. Good	Toronto.
E. T. Campbell	Toronto.
S. McBride	Toronto.
J. E. Osborne	Toronto.
Major A. B. Lee	Toronto.
H. M. Robinson	Toronto.
J. B. Townsend	Toronto.
Fred Maher	Toronto.
J. W. McKenzie	Winnipeg.
W. Harland Smith	Toronto.
F. W. Hodson	Ottawa.
T. Ambrose Woods	Toronto.
F. S. Meighen	Montreal.
Noel Marshall	Montreal.
H. G. Wade	Toronto.
Arthur Taylor	Toronto.
W. T. Merry	Toronto.
Stewart Houston	Toronto.
Dr. G. A. Peters	Toronto.
Shirley Stewart	Toronto.
Arthur Johnston	Greenwood.
P. Maher	Toronto.
Dr. W. A. Young	Toronto.
Thos. Dunn	Mimico.
Dr. D. King Smith	Toronto.
C. W. Wilmot	Port Hope.
F. M. Wade	Toronto.
Frank Hodgson	Toronto.

Canadian Horse Breeders' Association

ANNUAL MEETING.

The tenth annual meeting of the Canadian Horse Breeders' Association was held at the Rossin House, Toronto, February 5th, 1904, at 8 p.m., the President, Dr. Andrew Smith, in the chair.

The minutes of the last annual meeting were taken as read.

PRESIDENT'S ADDRESS.

By Dr. Andrew Smith, Toronto.

Gentlemen: The meeting is now in order and I am pleased to see such a large attendance considering the night. I have no particular address to give you, but I merely wish to state that the Stallion Show in the spring was a success, and the Horse Show was also a success, and we entered somewhere about sixteen hundred dollars to the good, and we have had rather a favorable year. We were not able to do very much in regard to seeing about the erection of a building. There were many things transpired during last spring which militated against anything of that nature.

REPORT OF THE SECRETARY.

This the tenth annual meeting of the Canadian Horse Breeders' Association finds it in a most satisfactory and progressive condition. Its finances are healthy, while its membership yearly shows a gratifying increase. A greater matter, however, for the Association to congratulate itself upon is the part it has played in promoting various shows and in bringing practical people together. By these means it has fulfilled its mission in encouraging the development of the horse and in spreading a love for the noblest of all animals, vide Dr. Mills, then principal of the Ontario Agricultural College, in his excellent address at the first revised Spring Stallion Show held at Mr. Walter Harland Smith's Repository last year. The horse interests of the country, despite the coming of the motor car and the trolley and the bicycle, were never in a more promising condition. I think it is with pardonable pride that this Association can point to the prominent and influential part it has played in bringing about this result. We have heard on several occasions about the coming of the horseless age, but it is evidently not here yet. On the contrary the returns prove that horses were never more numerous and never more required than they are now. Progress demands them as its pioneer. Motor cars require good roads and trolleys require tracks. Neither can be obtained without the aid of the horse, who I am sure members will agree with me can never be entirely superseded. Although many poor animals yet find employment,the general improvement is manifest both on our streets and on the farm. It is, perhaps, to be regretted that culls fall into the hands of men who are indifferent to their keep and appearance, men who in the past did the drudgery that they now have horses to perform. We can be sorry for this, but at the worst it is doubtful if the animals are as badly off as they were before electricity was employed for public transit.

As you are aware the Association was able to grant $1,000 towards a revival of the Spring Stallion Show which was started on the streets around the market nigh a score of years ago and which was merged eight or nine years ago into the Canadian Horse

Show. Without going into the causes which led to a revival of the old order of things as far as the Clydes and Shires are concerned, I am pleased to say that the Show, which was held Feb. 4, 5 and 6, was a pronounced success. Not alone were the exhibits of a high class, but eminently practical men such as Hon. John Dryden, Provincial Minister of Agriculture; Dr. James Mills, then Principal of the Ontario Agricultural College, Mr. W. E. Wellington, Chairman of the Executive of this year's show, which will be held March 2nd, 3rd and 4th inst., Mr. William Smith, Columbus, and Lt.-Col. McCrae, Guelph, attended and delivered addresses that can be well calculated to have been a power for good. The same amount, namely $1,000, has been granted for this year's Heavy Stallion Show and has been generously supplemented by a grant of $750 by the Canadian Clydesdale Association, the latter thus showing in a magnificent way their appreciation of this Association's action in acceding to their request for separate attention.

While it might reasonably have been expected that a division would at least in a minor way detract from the interest in the Canadian Horse Show, held in the Armouries April 29th and 30th and May 1st and 2nd, and to be held about the same time this year. I am glad to report that in no sense was this the case; but that the Ninth Canadian Show, in point of attendance and in attractiveness, near the equal, if not the superior of its predecessors. On military account the expenses were of course in excess of other years and consequently the amount placed to our credit was hardly as large as usual.

From year to year the executive think you will agree that the wisest uses are made of the revenue, several grants being made for special prizes at the Industrial Exhibition, Toronto, and other shows, including $250 to the Dominion. These grants I should remark are generously supplemented by other associations and societies in affiliation with this body, so that to a great extent systematic encouragement is forthcoming of the horse industry. In addition this Association has for years past granted $50 towards paying the wages of a man having charge of the live stock cars that are sent to the Northwest. Still further the Association placed $100 at the disposal of the Committee to be devoted to the encouragement of special lectures on the horse last March in connection with the stock-judging classes at Guelph.

I am pleased to say that the success previously achieved by Canadian exhibitors, and especially leading members of this Association, such as Messrs. Pepper, Beck, Crow & Murray, Robert Davies, Graham Bros., at foreign shows was repeated in 1903. In this connection I would direct attention to the fact that this year the Dominion Exhibition will be held at Winnipeg, Man., and that liberal provision is to be made for the horse department and for the encouragement of eastern exhibitors.

In accordance with a resolution passed at your last annual meeting a deputation comprising Messrs. Peter Christie, Manchester; John Bright, Myrtle; Henry Robinson, Toronto; William Hendrie jr., Hamilton; William Stewart, Regina, N.W.T.; Fred. Richardson, Columbus, Ont.; J. M. Gardhouse, Weston, Ont.; Samuel McBride, Toronto; Dr. Creamer, Q'Appelle, Ass.; and your Secretary waited upon the Government at Ottawa on January 8th in reference to the violation of the country's customs regulations by bringing in culls, cayuses and undesirable stock generally from the United States; by fraudulent pedigree entires and by abuse of the settler's privileges. Those complaints were eloquently set before Ministers by various members of the deputation and were courteously listened to by the Premier, the Minister of the Interior and the Minister of Agriculture, whose attitude was such that I feel justified in holding out the expectation of the application of remedies in the immediate future. In fact the Hon. Sidney Fisher promised that notification regarding the abuse of the customs regulations as regards pedigrees and settlers should at once be forwarded to officers of the Department in Manitoba, the Northwest and British Columbia. You will be deeply grieved to hear that Mr. Wm. Stewart of Regina, N.W.T., the chief spokesman of the deputation, who placed his views practically and helpfully before the Ministers, has since passed to his long account and I venture to suggest that his family would greatly value a resolution of sympathy passed by this Association.

You will be gratified to hear that breeders are taking increased interest in the registration of stock. By continued attention to this matter our stud, herd and flock books will vie in genuineness, reliability and quality with those of other countries, and the United States Agricultural Department will feel constrained to extend them that recognition which by their merit they already deserve, but which is denied them.

Altogether I think you will agree with me that the year 1903 was eventful and progressively momentous for this Association. In conclusion I venture to express the hope that you will authorize me to write to His Excellency, the Governor-General, thanking him for the active interest he has always manifested in the success of our shows and in the development of the horse.

All of which is submitted with earnest hopes for the future.

HENRY WADE, Secretary-Treasurer.

FINANCIAL STATEMENT.

For Year Ending December 31st, 1903.

Receipts.		Expenditure.	
Balance from 1902	$4,680.44	Grant to Canadian Horse Show	$1,750.00
72 members at $1	72.00	Prizes, Stallion Show	1,000.00
Interest on deposits	136.39	Prizes, Industrial Exhibition	250.00
Share profit on Horse Show	1,664.01	Auditor and stenographer	14.00
Government grant	2,000.00	Grant for lectures	50.00
		Committee expenses	26.20
		Printing and stationery	31.08
		Postage	35.00
		Balance on hand	5,396.56
	$8,552.84		$8,552.84

Audited and found correct.

CHAS F COMPLIN Auditor. HENRY WADE, Secretary-Treasurer.

Toronto, Ont., Jan. 20th, 1904.

OFFICERS FOR 1904.

President—Dr. And. Smith, Toronto.
1st Vice-President—W. E. Wellington, Toronto.
2nd Vice-President—Thos. Graham, Claremont.

Directors:

Thoroughbred Association—Dr. And. Smith and William Hendrie, jr., Hamilton.

Harness, Hunter and Saddle Society—W. E. Wellington and Ald. O. B. Sheppard, Toronto.

Hackney Horse Society—Thos. Graham and E. C. H. Tisdale, Beaverton.

Trotting and Pacing Horse Association—Geo. Pepper, Toronto, and Samuel McBride, Toronto.

Clydesdale Horse Association—Peter Christie, Manchester, and Fred. Richardson, Columbus.

Shire Horse Association—J. M. Gardhouse, Weston, and William Wilkie, Toronto.

Canadian Pony Society—H. M. Robinson, Toronto, and H. Gerald Wade, Toronto.

Draught Horse Association—Jas. Mitchell, Goderich, and Thomas McMillan, Constance.

On motion it was resolved: "That the above representatives from the different associations constitute the directorate of this Association."

Secretary-Treasurer—Henry Wade, Toronto.

RESOLUTIONS.

A communication was read from F. W. Hodson, Live Stock Commissioner, Ottawa, asking the Canadian Horse Breeders' Association to make a grant of at least $500 towards the annual Heavy Horse and Light Horse Show for 1904.

Mr. Wellington: I may say I am fully in accord with the letter that our esteemed Live Stock Commissioner, Mr. Hodson, has sent to the Association to-night. I am satisfied that we should give assistance, as we are able, where it is so well merited. We receive from the Ontario Government a grant of $2,000 at the present time, and I am satisfied that an action on our part such as I will move to-night will receive the endorsation of the local Government, and I would not be surprised if we would be reimbursed if we gave this money. At the same time, whether we are or not, I have pleasure in moving: "That the Canadian Horse Breeders' Association grant the sum of $500 to the Ottawa Horse Show."

On motion it was resolved: "That one thousand dollars be granted to next year's Spring Stallion Show, held in Toronto, if it is the wish to continue it."

NEW BUSINESS.

Mr. F. W. Hodson outlined the result of his official visit to St. Louis and also explained to the breeders the exact condition of the regulations existing between the United States and Canada, and produced letters from the United States Department of Agriculture substantiating same.

The following resolution was then passed: "That we the Canadian Horse Breeders' Association, in annual meeting assembled have heard the resolution passed by the representatives of the various Horse Breeders' Associations at a special meeting held in the Rossin House, November 11th, 1903, and we fully endorse the sentiments expressed therein; and also endorse the action taken by F. W. Hodson, Live Stock Commissioner, at the conference held in St. Louis."

On motion it was resolved: "That the Horse Breeders' Association of Canada, in annual convention consider it desirable to establish a National Live Stock Association, and that we forthwith appoint delegates to same." Delegates: William Hendrie, jr., Hamilton, Ont.; Dr. Andrew Smith, Toronto, Ont. (President); Henry Wade, Toronto (Secretary).

Mr. W. E. Wellington: I would like to move a resolution in one way to get the sense of this meeting. As most of you are aware I spoke a few words at the last annual meeting in regard to the erection of a building. I am anxious to see an Arena built that shall give the stock breeders of this country a home, and for various reasons. I think Toronto is the place that this building must be erected. At the last annual meeting a committee was appointed to deal with the question, but I have yet to hear of anything they have done. I have advocated in the past the Arena being built on the Exhibition grounds, and more especially have I advocated it since the city have acquired the additional lands of the garrison. And now that that is an accomplished fact it only needs the money to move the horse stables at Grand's and give us a building for an Arena there that will give us accommodation and we will have accommodation in the stables for our stock already erected; and I have favored that more particularly because I believe there will be an entrance to the grounds from the east, which would make it a very easy matter for the people to go to the Exhibition grounds. However, the Directors of the Industrial have felt very keenly on this matter, and are anxious that a by-law be submitted asking for such improvements and they have in their mind the building of an Arena. The City Council did not see eye to eye with that matter and declined to submit a by-law. That is just where we have been for years, and it is all talk. Now I understand that a proposition would be received by the Union Stock Yards people to have an

Arena built that would satisfy us, and in order that you may discuss the matter and take some action, I move the following resolution :

"Whereas last year a committee of our Association was appointed to secure the erection of a building suitable for holding fat stock shows, horse shows and fancy stock sales in Toronto, and as nothing has resulted from the effort and the necessity for such a building is becoming more apparent and pressing each year, we beg to make the following motion :

"That the Presidents and Directors of this Association be a committee to make an offer to the Union Stock Yards Company that providing the Company will furnish the necessary stabling accommodation, which will be available at show dates, for from 300 to 400 horses, and will deed to the Arena Company sufficient land for the erection of an Arena or pavilion, and will agree to subscribe for one quarter of the cost of the building not exceeding $15,000.00, we the Horse Breeders' Association of Canada hereby agree to make and subscribe for an equal amount of the cost of said building, and do hereby authorize the said Committee to negotiate with the Cattle Breeders' Association, and if possible secure their co-operation herein, and to organize a company for the purpose of carrying out the proposed project without further delay."

I have not thought enough over this proposition to be a particularly strong advocate, but we cannot go year by year without taking any action. I would naturally rather see it in the City of Toronto, but it has got to come some way, and we feel the Association ought to take some action and the City of Toronto, yes, the Province, is losing money by not having an Arena of that kind. I believe it can be made profitable in many ways. There are so many things outside of Horse Shows that could be held there that it would make a very good investment, and I believe the Stock Yards Company are willing to take hold of this matter. This is the resolution, and I simply lay it before the meeting to get their opinion on it.

Thos. Graham : I quite agree with Mr. Wellington, if it could be in the city. It might be, however, the Stock Yards in years to come would be the best place anyway. It has proved a great success in Chicago.

Jas. M. Gardhouse : I assure you I fully endorse every word said by Mr. Wellington and Mr. Graham. It has been long felt that the horsemen and stockmen of this country want as it were a home, want a place where they can have a show and want stabling in connection with it; and I can assure you any person who visits the stock yards of Toronto Junction will be more than pleased with the accommodation there. There is a splendid place for an Arena and good place for stabling. I think we have been losing ground in not having a building of this kind before.

Mr. W. S. Spark : This same matter came up before the Agricultural Hall was built in London, Eng. A long time before they got it built they did not know how they were going to make a Horse Show pay. Well, gentlemen, they got that hall built after quibbling about it for a long time. What's the result? There are something like five National Horse Shows held in that building in a year. There are various shows of all kinds, and it has been one of the best investments they possibly could have made. There is no reason why this should not be a good speculation. I hope I shall live to see the day when you will have a Clydesdale Show of its own, a Hackney Show of its own, a Pony Show of its own and a general show. You are growing, you are improving your breeds and the time will surely come in this country, and I look forward to it in my time to see these shows held separately and then one vast show together.

Mr. Pepper : I might go a little further and say it is the intention of the Union Stock Yards to build a stable to accommodate 400 animals, and they intend to have a horse market, where people can send in horses and have them sold, and they would pay one-quarter the cost of the building and give us land free. This building can be used for Horse Show purposes, used for dealers, used for Fat Stock sales, Fat Stock Shows, Stallion Shows and anything else, whereas if you wait till the city erects a building you would only be obtainable once or twice a year, and about the time we would

want it for a show they would want it for hockey. I think there is a proposition on foot to erect a large arena at the foot of Yonge Street for such purposes, but it would not be quite so well adapted for a Fat Stock Show. We have five or six thousand dollars, and after the next Spring Show we should have eight thousand, which would be fully two-thirds of the amount we are pledging ourselves. We may find ourselves next year or two years after with two Arenas, but better have two than none.

Mr. Arthur Johnston said that the City of Toronto had treated them with contempt when they tried to induce them to erect a building suitable for Fat Stock Shows, etc., in the city, and the result was they went to Guelph and there have one of the finest Live Stock Shows in the country.

Moved by J. M. Gardhouse, seconded by Wm. Smith, "That Mr. F. M. Wade be appointed Assistant Secretary of the Canadian Horse Breeders' Association." Carried.

The meeting then adjourned.

DIRECTORS' MEETING.

At the adjournment of the annual meeting the Directors convened and appointed a President and two Vice-Presidents, whose names will be found in the list of officers.

The Secretary stated that a preliminary meeting had been held in the King Edward in connection with holding the Canadian Horse Show, and that the Country and Hunt Club were prepared to hold that Show in conjunction with the Canadian Horse Breeders' Association on the same agreement as held heretofore.

After some discussion it was resolved : "That the Canadian Horse Breeders' Association grant the sum of $1,750 towards holding another Canadian Horse Show."

"That the entire directorate, with the exception of the representatives from the Draught Horse Association, be elected a Horse Show Committee." Carried.

Mr. Pepper suggested that when the next meeting was held, and they knew how many representatives the Hunt Club were going to elect, they could then select their smaller committee.

W. E. Wellington, Wm. Hendrie jr., and F. M. Wade were appointed the delegates to represent the Horse Breeders' Association at a meeting of the National Live Stock Association.

ANNUAL DINNER.

The fourth annual dinner of the Canadian Horse Breeders' Association was held at the Walker House, Toronto, on the evening of February 3rd, during the week of the annual live stock meetings, and was a pronounced success.

The dining hall was well filled, the toast list was not too long, and the speeches were brief and noted for their good points.

A number of letters regretting their inability to be present were read by Secretary Wade. Among these were : The Lieutenant-Governor, Hon. G. W. Ross, J. P. Whitney, Col. Gibson, Hon. J. R. Stratton, the Mayor of Toronto, Wm. Hendrie, Jr., Hamilton; T. C. Patteson, Senator Edwards, C. C. James and others.

Dr. Andrew Smith (Chairman) : The first toast on the list is a very important one. It is the horse interests. It is not necessary for me to make any remarks when there are so many here who are better posted as regards this important interest than I am. I believe the value of the horses of Canada run up anywhere from fifty to sixty million dollars, which gives us a little idea of the horse interest. No doubt a few years ago there was a depression in connection with the horse interest, but things have changed and this

interest is one, and will be one, of the most important interests of Canada. We are situated, gentlemen, where people from the east and west must come under certain conditions to get horses for the purposes that they require. I shall not say anything more, but will ask you to drink a bumper to horse interests.

ADDRESSES.

F. W. Hodson, Dominion Live Stock Commissioner : I have been talking all week, I have addressed meetings on several occasions concerning, for instance, the St. Louis Exposition and also our National Association. I shall not attempt to make an address, but simply try to make a couple of announcements.

First, I wish to say that the City of Ottawa and the live stock men of the Eastern portion of the Province did attempt to erect a fine building in which to hold shows of horses, cattle, sheep and swine in it, and we were going to have a splendid ring where horses could be shown and were providing ourselves with what we thought would be the very best live stock building in Canada, perhaps the very best this side of the water, but lo and behold we had a big snow storm and it all went down. Now, before the snow storm it was announced we would have a horse show, dairy show and live stock, such as held in Guelph, with a horse division added, and the papers at once announced on account of the collapse of the building the show would not be held this year. I am glad to tell you the citizens of Ottawa and farmers decided it would be held and we have a capital building in which we can accommodate the live stock just as comfortably as at home in which we can show the horses under cover and they need not go out of doors to be shown at all.

I want to say to the horsemen here that we earnestly request that you shall make a good exhibit in Ottawa from the 7th to the 11th of March. I will read the announcement.

"First Annual Central Canada Spring Horse Show, under the patronage of His Excellency, the Governor-General ; Honorable Sydney Fisher, Minister of Agriculture ; Hon. Clifford Sifton, Minister of the Interior; and Honorable Senator Edwards, Rockland, Ont. To be held on the Exhibition Grounds, Ottawa, March 7th, 8th, 9th, 10th and 11th, 1904."

These gentlemen have given both personal and financial assistance. The prizes offered this year for horses are practically the same as were offered here last year at Grand's Repository, with the addition that we are offering prizes for Hackneys, for Thoroughbreds and Standardbreds. In addition to heavy horses you had no prizes here last year. We are also giving $200 to a cart horse parade. We have received from the railroads reduced rates both for passengers, and stock to be exhibited there.

Another matter I wish to draw your attention to is the fact we are now establishing a National Association of Stock Breeders for Canada. It will meet in convention from the 7th to 12th of March this year in Ottawa. This is made up of delegates from the various Live Stock Associations throughout Canada. When I was asked to take office four years ago I was asked to establish a National Association, but at that time Canada was not ready for it because we only had Live Stock Associations in the Province of Ontario, but since that time we have succeeded in establishing Live Stock Associations and Farmers' Institutes in each of the Provinces of Confederation. We have splendid Live Stock Associations now with the membersip numbering up to one hundred thousand. Now from among these we are asking delegates to meet in Ottawa and discuss a number of very important subjects. I wish just to outline a few of them. The subjects we are going to ask the people to discuss there are those that have been discussed in nearly every Province of Confederation. There is a good deal of differenc of opinion concerning these, but we do not put them forth as the views of the people, but ask questions and want to find out the will of the people. Concerning the first is :

"Should Canadian records of pure-bred stock be national in character and scope ?"

"By whom and how should they be conducted ?"

"Should there be more than one record for one breed in Canada ?"

"Should an attempt be made to amalgamate British and Canadian records, so that there may be but one recognized record for each breed in North America ?"

"Should an attempt be made to amalgamate British and Canadian records, so that there may be but one recognized record for one breed in Great Britain and Canada ?"

"Can farmers be protected against loss by the purchase and use of breeding animals registered in unreliable or undesirable records ?"

"Can railroad officials be protected from carrying at half rates animals registered in unreliable or undesirable records ?"

"Should records conducted by Joint Stock Companies be accepted as desirable ?"

"Should foreign records be recognized as a basis for the free admission of breeding animals into Canada ?"

"Should the Canadian Government be asked to take steps to regulate the further imporation of horses, cattle, sheep and swine into Canada. (a) Grades and Stockers ; (b) pure-breds ?"

Now these are all questions that have been propounded to the Department of Agriculture from the various Provinces, and we are going to ask the people from the various Provinces to tell us what they want to do.

In referring to the question relating to the further importation of horses I might say at the present time the Dominion Department allow to come in free of duty all animals in records passed upon as reliable by the Washington Department of Agriculture and by the English Associations.

There are several other important matters, but as we are issuing a programme to-morrow I shall not go through the whole list, only to say we are going to discuss at considerable length is it advisable to develop a dead meat trade with Great Britain ? I think nearly every man in the room will say, yes. It is a question you should think very seriously over. I may say there is not a good animal killed and sent as a dressed carcass to Great Britain but that the shipper loses from four to five dollars to ten or twelve on that carcass more than he would if he shipped the animal on foot, if it arrived in good condition. Then you ask the question, "Why do the great companies in the United States send thousands of carcasses to Great Britain every year ?" For the very reason if quarantined to-morrow what would they do with the animals ? These facts are according to the statements given me by great American packers, and the question arises if we in Canada were quarantined to-morrow what would we do with our animals ? This is a question for every man to ponder over ; what would Canada do with her beef bullocks ? Animals must be killed for beef purposes, and the only thing we could do if such a condition of affairs did occur would be to send these animals to Chicago and pay the duty and let the great packers kill them and send them to Great Britain or elsewhere.

I do not propose to tell you what my views are on this question. I simply wish to lay the matter before you in order that you may appoint delegates to come to Ottawa fully prepared to discuss these questions with the Department of Agriculture.

Mr. William Smith, Columbus : I see on the menu card here the words "A Horse, A Horse, my Kingdom for a Horse." It is possibly hundreds of years since those words were spoken. Since those words were written many changes have taken place in the caring and breeding of the horse, and, sir, I know perhaps nothing that will bring more together than we have here to-night than the love of a good horse. One, perhaps, of the reasons is, that there is a good deal of profit in it. It is true that it is shaded by very severe losses, but looking to the future and judging by the past we will have to try and produce in the different breeds of horses the very best. This I think is true in almost every line of agriculture to-day, but if it is true of this it is intensely true of the horse. It is true, because if we have a good one, if we have one of the very best you

know we do not require to go anywhere through the country looking for a purchaser, the purchasers are looking for the animal.

Now in connection with breeding of horses for the future there is one point which has been of considerable interest to us as Canadians during the past three or four years, and that is, the very large importation of scrub horses from the Republic to the south of us. This is a question which might well engage the attention of not only the breeders of horses, but of our Governments, and as far as they are moving on the right lines as far as I can judge, and in the right direction, yet it appears to me too slow by all means, because these difficulties should have been overcome. I am perhaps not going so far as to say we should hit back the way we are hit, but at all events we should look after our own interests, and if it is necessary to take a certain line of action, we should not for a moment hesitate to do it. Perhaps, sir, and I do not think I would be out of place in expressing my opinion, perhaps no more important step has been taken by any Government than the one that is being taken to-day. It might have been done a good deal better if certain others were in power, Mr. President, but I say no more important step has been taken than the appointment of a Live Stock Commissioner; and I am going to say this, that if we are advancing in the direction I indicated a moment ago, it is on the advice of the Live Stock Commissioner, who travelled from the Atlantic to the Pacific, and who saw what was going on, and knows the feeling in this country; and in connection with that, allow me to say one word more and I am done. I hope, perhaps, steps will be taken to do away with the hardships which I have alluded to here to-night, and if this gathering is an augury of the future of horses and horse interests, then I hope we may have many such banquets and gatherings as we have here to-night.

W. S. Spark, London, Eng.: There should be a system whereby a stallion can be registered for soundness, there is little room for doubt. Only thoroughbreds and purebreds should, of course, be available for registration.

I would explain the system of registration as follows: That a farmer owning a stallion may apply to any veterinary surgeon to have him examined for soundness. If the veterinary surgeon passes the horses as sound and gives him a certificate, he may send that certificate to the Government, who should then supply, at a fee of $5.00, a certificate stating that the horse is a fit animal to serve mares, and in order to put a check on these certificates, the Government should appoint, say, six commissioners of horse breeding who are elected in different districts to look over the horses which have been granted these certificates. This would prevent any fraud, and would, in my opinion, work most successfully, for the owners of horses would then be absolutely certain that the horses having one of these certificates would be a fit animal to breed from. The system would probably have this effect, that the farmer would not be inclined to engage the services of any horse who did not hold such certificate. It would, in my opinion, do away with a great deal of hereditary disease.

It is a fact the farmers say there are not nearly enough sound sires available, and this is not only the cry of one district, but the general opinion of the farmers of Canada. It is undoubtedly a great handicap upon the owners of good stallions that syndicates of hawkers and worthless American stallions should be allowed to pump them in this country, and thereby compete with the genuine animal at a greatly reduced price. Draught horses should be bred with much more substance than the generality are at present. The weight should be from 1,600 pounds upwards.

I have addressed quite 4,000 farmers within the last three months, and the opinion I have formed is that they are desirous to breed better horses if they can get better sires. They seem fully to appreciate the fact that only sound animals should be bred from.

Now is the time to start this registration, and by so doing, if it is carried out on the right principle, it will enable you to get rid of the majority of unsound stallions; it will improve the breed of horses; it will enable the breeders to get far better

prices, and it will create a much larger market. I venture to say it will obtain for Canada, at no distant date, the reputation of being one of the best horse breeding countries of the world.

You are now entering on a period in the history of Canada which can hardly be overestimated. If you wish to supply the demand for good horses, both in your own and other countries, now is the time for you. and the Government to help you, stamp out hereditary disease. If you neglect this, when you wake up to the fact that it is necessary, you may find that some other country has taken the place which Canada should have had.

Edmund Bristol, Toronto : I do not know much about the subject of horses, but I fully appreciate the enormous value, made in the suggestion of Mr. Spark, about having certain registry of sound stallions, because we want to buy good horses, and we want to get sound ones, and there is a good market for good horses, and there is no use breeding to any old thing and hoping to get sound horses. There are numbers of us who have travelled out of this country hoping to get a first-class saddle and hunter, and that should not be the case, because we can develop a horse good enough in this country to go to New York and be a winner, and our horses in South Africa have shown that they have as great endurance as any other horses in the world. We have the possibility of developing the very best in the world, and there is nothing worth doing that is not worth doing well, and I think it is to the farmers' interests to have good horses and breed good horses. As a Canadian, I take a very great interest in this country, and I assure you the development of the horse interests is one of the most important we have to consider, and I am sure the Government should be only too glad to assits and do everything possible in making the Horse Breeders' Association a success, and have the horses in this country the very best the world can produce.

J. D. Allan, Toronto : When I received your invitation to attend to-night, I wondered if I were to be asked to say anything, and if I were asked under what head I would come as a speaker. I thought when looking at your programme it certainly would be under "guests"; however, I am very proud to say a few words in whatever benefits the public. I hope I have done something in that way, and I can lay claim in having done something in assisting the live stock interests of this country at any rate, as I have the honor of being the President of the Union Stock Yards at Toronto Junction, and if anyone present has not seen them, they should at once go out and see them, and they will be impressed with the fact that we assist in largely increasing the trade in Canada in this direction; and let me say this, while I did not come here to talk shop, I think it is rather a misfortune that such large galaxies seem to have no central rallying point, and I think it is a misfortune which could be easily remedied, but that is a matter more for yourselves than anyone else.

When I was in Russia this year, I made a particular point of ascertaining how it comes that Russian horses are so highly prized, and I speak with some diffidence in the presence of such a distinguished authority as Mr. Spark, but I am sure he will agree Russia certainly has done a great deal toward the development of the proper strain of horses. The Russian Government has a special department that oversees horse breeding, and at the head of that is one of the finest horsemen in Russia. Russia's department of horse breeding alone is larger than the entire Department of Agriculture at Washington, and better equipped. I was very much interested in the information that the head of the Department gave me regarding the interest in the development of horses in Russia, and the trouble that the Government took, and I could not help thinking when Mr. Sparks was speaking regarding unsound stallions, that this and a poor strain of blood in horses were among the things the Russians specially guarded against, and the director told me one who was really more responsible than any other man for having a good strain of blood in their horses was Count Alexis Orloff Tchestmensky. Count Orloff is the man after whom the celebrated Orloff trotter is named, and I was informed it was he who started the first Russian Stud Book, and he collected

the best strains of blood up till about 1772, and as horse breeders I am sure you will be interested in learning in what countries he selected the most horses. They were as follows:

	Stallions.	Mares.		Stallions.	Mares.
Arabian	12	10	Dutch	1	8
Persian	3	2	Mecklenburg	1	5
Turkish	1	2	Spanish	1	1
Armenian	1	2	Polish	1	3
Bulgarian	1	2	Neapolitan	1	1
Caucasian	1	3	Ukraine	1	1
British	20	32	Crimean	1	2

These horses he crossed as he found most suitable, and produced types of horses for the various districts in Russia. They now have in that country six stud farms belonging to the State, and there are 25 horses for each 100 inhabitants, and in some parts one horse for each inhabitant. In the 47 Provinces of European Russia there are 2,300 private stud farms. I have ascertained that the total number of horses in the world are 60,455,000, and Russia has 33,000,000.

Finland has made great improvement in horse breeding, the color being bay or chestnut, with black manes and white tails. On the Steppes about the River Don horses are reared in stud farms; an excellent breed is produced by crossing Oriental and English blood.

The nomadic tribes of Kalmonks inhabiting the right bank of the Volga possess some 30,000 mares, and on their stud farms breed a strong horse called Kalmonk; crossed with superior saddle horses it produces an excellent cavalry horse.

In Turkestan exists an Oriental race of horses with long and delicate legs, fine body and perfect movement. This is crossed with the Klurges, and the Karabir horse is the result, which is said to be the best battle horse known. When Tamerlane conquered Arabia he brought back 500 stallions, and distributed them through the Steppes of Russia. As I said before, Russia has six stud farms belonging to the State. The farm of Khrenooski breeds trotters and heavy foreign horses, and contains 300 mares and 32 stallions. The Beloodsky farm produces English and Arab thoroughbreds, that of Novo Alexandrooski half-breeds, the Ianoosky, English thoroughbreds and half-breeds, while the Lumareosky breeds a celebrated saddle horse called Orloff Tostopchim, which is a cross between an Arab and English thoroughbred. Besides the Government farms in Russia, the Government has 31 depots for coupling private mares with their stallions, and in 1901, 3,550 stallions served 79,667 mares.

I was most interested in the trials of speed which I saw in Moscow, and to me it was most unique the powers of endurance tested. I found in one race the horses were driven fifty miles before brought on the track, and then their speed was tested in the last mile, which I think you will agree was a good test of endurance.

Now, gentlemen, as Mr. Spark has said, there is no doubt a splendid market for the proper strain of horses. We have some fine horses here, but we have far too few.

I thank you very kindly for the opportunity you have given me to address you. The necessities have been pointed out by those gentlemen who are connected with the horse trade, and I am certain as time goes on the one thing that associations must do is to impress upon the Government the necessity for spending money along these lines, and money spent along these lines will return a larger dividend than in most other ways.

J. M. Duff, President of the Fat Stock Show, Guelph, considered it a great honor to dine with such a distinguished and representative gathering of horse men.

Mr. Robert Miller expressed his pleasure at being present. On two or three occasions he was unable to attend the banquet, and he found if a man missed attending the annual banquet, he missed one particular occasion that he should attend every year, as he naturally fell behind in matters pertaining to horse interests if he did not attend regularly. He was pleased to hear Mr. Spark, and glad to hear Mr. Allan

speak as to his trip to Russia. It was a most interesting country, and a little difficult to get into, but more difficult to get out of again. He had been in sight of Russia, but when he heard of the difficulties he did not go any further. Mr. Miller said when a person came in the neighborhood of Russia you could see the effects of good horse breeding. He had found the Hungarian horses came nearer the ideal than in any other country he had been in with the exception of Great Britain. Continuing, Mr. Miller said: Great Britain has done a great deal for horse breeding, but I may say that we have a good country, and we have the ability in the people of this country to breed just as good horses as are bred any place in the world, and I say we ought to go to the Government at Ottawa and ask them to give us the encouragement we preserve in this interest. I want to give the credit due to our Chairman for what belongs to him in this one respect: he has done more to bring the farmers and city people together at these banquets than anything else I know of. He has brought out the talent and lovers of the horse in the city, and the talent and lovers of the horse in the country, and he has done a great deal to do away with the feeling that used to exist and the dividing line that existed, and we now receive encouragement from each other we otherwise would not have had if we were not brought together in this way.

Mr. Spark told you the Government might do one thing in regard to having unsound stallions expunged from this country. The Government might go a little further in that direction: they might give us some encouragement to form societies and hire stallions in this country, and help us to do away with the syndicating of stallions that is taking place, for that is one of the greatest curses that has ever been introduced into this or any other civilized country—syndicating stallions and selling them for four times their value. I have seen horses in the Northwest sold between three and four thousand dollars not worth three hundred; a man might better have taken five hundred and thrown it into the water than have that horse come into that community.

I think that might be taken up, and the Association might be encouraged to hire good, sound and registered horses and introduce them into different sections. If the Government were to spend some money by encouraging these associations and start them the same as in Great Britain, they would be doing a work that could not be duplicated by any Government or any mass of people.

I want to hold out this warning note, that if they do not do something before long in regard to stopping these scrub horses being brought into the Northwest, they are going to be too late. There are ten or fifteen thousand horses ready to move in as soon as spring opens, and I wish to hold out a friendly suggestion—a friendly warning. I want to point this out to them, that they will only be doing a duty to the people in this country and saving themselves a great deal of blame that would otherwise be attached to them if they fail to do it.

Arthur Johnston stated he was delighted to dine with such a representative body of horsemen as were assembled. He thought they had suffered the loss of thousands of dollars through the injury being done to the horse trade in allowing inferior horses to come into the country. He was also of the opinion that it would be a great boon to the horse interests of Canada if the monied men would invest in good stallions, the same as the aristocracy in England had done. A man may have a stallion worth ten thousand and there are hundreds and hundreds of people in this country who are not monied men, and, therefore, this stallion falls into the hands of a man who is forced to make a living, whereas if they had men who had plenty of money in the business—the business men of the country—they would buy such an animal for patriotic reasons and reasons of fashion.

Robert Ness, Howick, Que.: It affords me great pleasure to be able to be with you to-night. Pleasure in several ways, but to be able to state to my people in the Province I had the honor of being asked to say a word to an audience of this importance here to-night. I might say I quite sympathize with the gentlemen who have spoken before me with regard to horses.

I heard a year ago a very prominent may say he did not know the difference between a Clydesdale horse and a Shire one, and the impression was left on me that a scrub Shire and scrub Clydesdale were too much alike, and it was very hard to know the difference, and we can know very well how most people go astray in this matter. Now, if we follow the line Mr. Spark has spoken of, we will have fewer scrubs. I feel a great deal can be said about horses, and in my little experience it has been a great pleasure to me to be associated with the men interested in horse breeding.

Continuing, Mr. Ness said that when he was a boy his father did not want him to go into the horse business, as he said it was degrading, and the men in this stallion business were the lowest grade in society, but he was proud to say this was not the case now, and he was glad to be associated with such men as Mr. Sorby, the Graham Brothers, Mr. Smith and Dr. Smith, and many others, and it was elevating instead of degrading to be associated with men of this stamp. He asked them to look to what the worthy President and Dr. McEachern had done to raise the standard of their profession, and he was satisfied the horse business would prosper as long as they had men of this stamp in it.

Peter Christie, Manchester: I think there are no gentlemen who should not be proud of being horsemen. I have an opinion in reference to improving the horses of this country, and I am going to strike at the importers. I am strongly of the opinion that the importers are bringing a lot of horses to this country that never should see Canada. I think that is a great mistake, and while we object to horses coming from the other side which are no good, and a disgrace to us; still, I think if we are going to raise the standard of horses in this country there are a number of horses brought by importers from the Old Country which should not be brought out at all, and I think if they made a point to bring nothing but first-class stallions to this country they would do a great deal to improve the standard and breeding of the masses of the horses.

John Bright, Myrtle, said he was very much pleased to see the Ottawa people were going to hold their show, and the breeders should rally round and make a good exhibit there. He also thought they should go prepared to the Government and make their demands, and see that they got what they asked for. Mr. Bright was of the opinion it would be a great benefit to the country if they had the change Mr. Miller proposed, but he thought if the importers brought good horses out it would be doing a great deal of good to the country if they did syndicate horses, and syndicate them very high, because in certain sections if the farmers got a good Clyde and were interested in the horse they would use it.

J. E. Smith, Brandon, Man., stated he was not prepared to make a speech, but was very grateful for their kindness in asking him to be present. He said Mr. Miller's sentiments were very much appreciated in the West. People out there would rather buy from the East; as far as he was concerned, he would much rather buy in Ontario than across the line.

Mr. Geo. Pepper, Toronto: I am not much for speaking unless there are figures connected with it, and there are one or two things referred to this evening which I would like to draw your attention to, that is, the value of Canadian horses.

I find in 1891 there were 1,470,572 horses in Canada; in 1903, 1,577,301, or only an increase of 107,000. I regret to say, in looking over the statistics of horses under three years, that the number in Canada for 1903 was forty per cent. less than the number of horses ten years previous, thus showing that we have not been breeding, and we have not got the horses in the country to supply our demand.

The value of horses in 1901 was $118,259,094, making the average value of the horses about $100 apiece. We have to pay to-day well on to $300 apiece, and I think that is a low estimate. And I find also the export of horses for twelve years, from 1890 to 1902, averaged about 12,000, or an average of about $1,500,000; but the horses exported in 1903 had dropped down to $595,921, or a decrease of nearly a million dollars, showing still we were not breeding. One great lack of the country is good dams. There

is undoubtedly a great lack of high-class mares, and some move should be made to encourage the farmers to keep all their good mares, for no matter how many stallions we have, we cannot get good foals without good dams, and I think the Government should do something to encourage the breeders to keep good mares as well as give encouragement to have good stallions travel the country.

During the past year Canadian horses went into the United States upwards of forty thousand, and Canadian horses were never so popular, and there was never the demand that there is to-day in the United States. I went to Boston, and was showing there a week, and during that time I had over a hundred and fifty persons looking for Canadian horses, and I think we should make a strong movement to get better mares —better dams—and give some encouragement to those who produce them, because without good mares we cannot show, we cannot sell, and we cannot make money out of our horses, and we have got to go to the breeders for them.

Col. Delamere : I cannot say much about horses except from a military standard, and, of course, military horses are the ones I take most interest in. There are two different classes required for military purposes, one a long horse, rather heavy, and the other a saddle horse. I think in giving prizes for military horses in your prize list, you should give the prizes for horses not trained, and there should be two classes, one for light draught and long, heavy set horses, and the other for saddle purposes, and they should be judged according to type more than individual training. Almost any horse can be trained, and it would be better to look more to the type of horse required for military purposes rather than the amount of training they have. I would like to see a prize given for horses, a stallion and two mares, for military purposes, and encourage that class of breeding. Of course, they are always valuable, and that class is very desirable to breed in this country, and would be necessary in case of any trouble.

Major Robertson : As a military man, I may state we require a peculiar kind of horse. We want a horse with size and weight of a Clydesdale—I am speaking particularly of Highland soldiers—and we want it strong and large, but still want it with the speed of a thoroughbred. Now, if any breeder here can produce a horse of that kind he would do the greatest possible good for the country.

Ernest Chase, New York : This has been my second year in Toronto, and I can only say the hospitality shown me by the Canadian people has been so great that I would like to live here. I prefer living here to New York. I was fortunate enough to be connected with the sales department in a large establishment in New York, and I know this much, that Canadian horses would be very much appreciated in New York—there is no question about that. We have a big market there for horses such as I saw in Grand's last year in the show. I never saw such fine horses in my life, not in all my experience in New York.

Mr. David D. Morgan of New York State was called upon by the President for an address, and made a very humorous speech. He was thankful for the privilege of being present, as he was always happy with horsemen, as they were men of intelligence, and their hospitality was beyond description.

Mr. Morgan stated he was attending the Veterinary College here, and was sure it was the best veterinary school on this continent; he had travelled a great deal in his life, and had visited many colleges, but he ran across more Toronto men that were horsemen and understood their business than ony other educated men in his line in the country.

C. W. Nelles, Secretary of the Guelph Horse Show, expressed his pleasure at being present, and thanked the Association for extending an invitation to dine with them. They were closely associated with live stock interests in the City of Guelph, and had there the finest Agricultural College in the world. (Mr. Spark : "Absolutely the best.") He considered the Horse Show educators to the farmers and agricultural classes, as they were taught the style of horses to breed for the purposes of showing and selling. A cordial invitation was extended to all present to visit the Guelph Horse Show.

Second Annual Spring Stallion Show, 1904.

SECOND ANNUAL CANADIAN SPRING STALLION SHOW, 1904.

The dates for the Second Canadian Spring Stallion Show were selected a month later than in 1903, viz., on March 2nd, 3rd and 4th. In an ordinary winter these dates would probably have been eminently satisfactory, because, as a general thing, we get our worst storms in February, but in this record winter the time selected proved most unfortunate, as the railroads were blocked in so many places by one of the periodical storms of snow which have swept over the country so frequently, and of all the large number of horses entered only about half were able to be present. Had it not been for this drawback the show would have been an undoubted success, as the total entries reached as high as 171, as against 95 the year previous. Prizes were offered for Imported Clydesdales and Shire Stallions and Mares, and for Canadian-bred Stallions and Mares of both breeds, the latter showing together. There was also a class for geldings sired by a registered Clydesdale or Shire stallion, the prize money for which was given by the Dominion Government. There were 35 stallions entered in the three-year-old imported class alone and every section was well filled. Some of the largest exhibitors, such as Smith & Richardson, Columbus, could not be present with their horses. A feature of the show was the large number of imported animals entered.

VALUABLE ADDRESSES TO HORSEMEN.

Two large gatherings of horsemen assembled at Grand's Repository on the evenings of March 2nd and 3rd, 1904, and listened to the following instructive addresses on horse subjects, and participated in a general discussion.

Mr. W. E. Wellington, Chairman of the Second Spring Stallion Show, occupied the chair on the first evening, and Mr. Wm. Smith, Columbus, presided on the following evening.

HEAVY AND LIGHT HORSES.

By W. S. Spark, Ottawa.

I seem in a somewhat awkward position to-night, because to ask me to address an audience such as this seems very much like asking a man to send wheat to Manitoba. I am afraid I have come to talk to people who know a great deal more on the subject than I, but at any rate I shall do my best to interest you for a short time.

I may say at the beginning if we are going to breed horses as we should, there is no doubt about it that we should breed some sound animals. It is no use for a man to use a cheap sire, a cheap unsound sire, and think he is saving money by doing so. For instance, if I see a sire being used by a man, which costs from $2 to $5, and there are plenty of them in the country, and another man uses a sire for which he has to pay from $20 to $25, I might say to the first man "You are saving from $15 to $20 by using the cheap sire." If cannot be so gentlemen, and the good sire is used by the man who has common sense, because when he comes to sell the produce on the market he is at least $100 to $150 better off than the man who uses the cheap animal. It cannot be sound policy to use cheap unsound sires, and so long as there are so many of these in the country I fear that there will be many farmers who will be inclined to take the cheap ones and poor results will naturally follow.

There is a subject that is near to my heart that I will bring up, and that is the registration of stallions for soundness. I would have a veterinary system of registration, whereby any farmer can get a veterinary surgeon to examine the stallion for soundness. If he receives a certificate of soundness, he should then apply to the Government, and on the payment of a fee of five dollars he should receive a certificate saying that the horse was fit to serve mares. If the certificates were granted I would have a list of these certificates of soundness sent to every Farmers' Institute in the country. Do you think then the farmers would select a stallion from $2 to $5 if he had not a certificate? They would gradually learn that these certificates are of immense value, and will make the markets better throughout the country and will do good all round to the breed and certainly help stamp out hereditary disease.

When you have bred your mares, I want to suggest to you that in every case where you get a good sound filly foal keep it and sell your gelding; keep her to breed from, because as the old mare gets older she is deteriorating in value and when you have bred the filly foal to the same class of animal she was got by, you are improving the breed. Then I would suggest that you make certain districts famous for certain breeds of horses. This would pay you much better than having only a few of several different breeds in the district, because if a large buyer knows that he can go to a certain district and get a carload of horses, he would much prefer doing this as his expenses would be greater where he had to go from one section to another, and he could afford to pay you more if he could collect the whole carload in the one district, so if you could make your district celebrated in one particular breed, the Clyde in one, the Shire in another, and Hackney in another, or any breed you like to name, it does not matter which it is, and if you make your district famous in this way, you will have the dealers and the public flocking to that district because they know they can get what they want there. If those of you who are neighbors could see your way clear to go into one class or breed, it would pay you.

I am now going to say something that will perhaps rather shock you. You have no breed except the Standard Bred in Canada that is worth much. I am not a great admirer of the Standard Bred, but that is not to say that he is not as good as the Hackney; he is good enough for me as far as a carriage horse goes. But be it as it may, you had a breed here the Canadian pony, and a better little animal I never saw, but you have ruined that breed through indiscriminate crossing. It was a useful little animal, but was ruined through crossing with scrub Percherons and Belgians. You can never get back to the original breed and get a chance to replace them; and I am going to be bold enough to make a suggestion to you to-night that no other man dare make: I am going to suggest that you make a breed of Canadian draught horses, and make that breed a cross between a Shire and a Clyde. This is the best draught horse that can be produced, and with the good qualities of both you should make one equal in quality and substance, one quality of bone, etc. Get them fairly well mated, and they will make the finest possible animals that can be produced in the world for draught horses. You have that opportunity, and this is what I suggest to you. Now some may say "We do not want to mix these two breeds." Will any Clyde breeder answer this question: "Was the Prince of Wales a good horse in your estimation, a good horse as far as prepotency goes?

Breeder: He was all right.

Mr. Ness: He was not Clyde all through.

Mr. Spark: The grand dam on both sides of Prince of Wales was a Shire. There is your Prince of Wales, a pure bred Clyde. I have the authority of Mr. Nichol Fleming the breeder, and Mr. Laurence Drew, for making that statement.

I am going to show you a horse, Dunsmore Willington Boy, one of the best stamps of Shire we have in the country at the present time, and he has two crosses of Clyde in him. Now does not this bear my argument out? You take the two classes of animals, Clydes and Shires, and one is not to be separated from the other, therefore, you are

not bringing in anything new. Why should you not bring these two breeds together and make the finest draught horse in the world ?

Now the farmer has to breed for profit, and unless you can breed draught horses with more substance you will never get the money and market you should for your animals. The object is to produce a horse that will have the least amount of strain in his limbs. That is my idea of a draught animal. I think I am suggesting to you to make a breed that many of you have got, but want to ignore the fact that you have got it. Now, what I want you to make is that Canadian draught horse, and make him known all over the world.

You who are Clyde men have improved your breed so much I am afraid I am treading on people's toes, but Mr. Laurence Drew and the late Hugh Crawford, both highly thought of by Clyde and Shire men, used to come down from Scotland to pick out all the best Shire mares from England, clean in coronet, sound in feet, and with as good pasterns as they could get; that is why your Clyde to-day is better than our Shire in legs and feet taking them all round, because you took all our best mares and left us with the poorer, and it has taken years to bring us around.

I should like to suggest something to those of you who are fond of light horses, I would like you to teach your sons to ride. Yu know every farmer and every farmer's son rides in the old country. You know it will be to your disgrace that more of your farmer's sons do not ride, and it was in riding more than anything else that they were deficient when recruiting for South Africa, and it is a disgrace. Now then teach your sons to ride; give them some interest; give them a foal, let them break it, and let it be theirs, but when the foal comes to be four or five years old do not sell it and keep the money, but let him have it and keep it as his own, and when he sells it, as he should some day, let him put the money to good account. I shall give an example of this and the result : There was a man in this Province who gave his son a colt when he was fifteen years of age ; the boy took pride in this colt, broke it, rode it and drove it himself. He took one or two prizes, perhaps second or thirds, I do not know, but he does not live a hundred miles from here. When he was nineteen years of age he sold that colt and sold it for so much money that he spent a three years' course at Guelph Agricultural College with the money he got. Now, if you can do that with your sons what an amount of good it will do. I shall give you that man's name. It was the son of Mr. Andrew Elliot of Galt. If you can follow that example, it is one worth following.

I cannot go very much into the breeding of horses to-night ; as I said I am to be followed by a man much more able than myself, simply because he has had more experience in this country ; and I am desirous of hearing what he has to say myself. But before I go on and show you the illustrations, I would just like to say a word or two about grooming.

No horse can be kept in thoroughly good health without grooming. Now you might say : "Why should the horse that is stabled require grooming while the animal out at grass does not require it at all ?" I will tell you why. It is not the fact of the horse being under cover that necessitates the grooming. It is the fact that the horse has hard work to do, and therefore must be given highly nutritious foods to enable him to do that work. This highly nutritious food increases the secretion of the glands of the skin, and unless you assist that by grooming, the pores of the skin will become clogged, and the health will deteriorate greatly. That is why a horse should be groomed. Grooming or in other words cleanliness of the skin, is not as many suppose, a mere matter of appearance of a rough or smooth coat ; but it is essential to the general health and condition of the domesticated animal, and to those of you who use the curry comb I would ask you never to put it on a horse's back, as it was never made for that purpose. We in the old country invented it, but the proper way to use it is to take a dandy brush, one with light bristles, and see that it bears upon the pores of the skin without disturbance ; then take a body brush and take the dirt out of it, and clean it on the curry comb, but never put this sharp instrument on a horse's back and make him

cringe away from you. And I trust those of you who have used it in this way will not use it again.

(At this period of the lecture Mr. Spark showed some splendid specimens of heavy and light horses on canvas by means of lime light views.)

Continuing he said: A great many people rather look down upon horse breeders; now I do not see why they should. If you take all our most notable men; take Lord Rosebery, the Duke of Devonshire, Mr. Chaplin, and Lord Londonderry; they have all been breeders of horses, and certainly are gentlemen. If he will be honest and straight, there is no man need be ashamed of being a horse breeder; but it is detrimental to the industry so long as you have men to contend with, such as I have run across in the past fortnight.

There is a certain man in America, I am not a liberty to give his name here, but will give it to the Minister of Agriculture if he desires, who sold a Percheron stallion in Canada for $3,600. He syndicated him; that animal would not serve a mare; he offered that they might take anything in his stables to replace this animal He had not one worth $500 in his stables, but they had to take what they could get. He took this animal five hundred miles away and syndicated his there and had to do the same thing; he took him again 150 miles from there and syndicated him there for $3,500. This animal could not serve a mare, and he has done this four times. Now, so long as this sort of work is continued it is a great injury to the business. Everyone would know this man's name if I mentioned it. That man also did this: I will explain first. The Secretary of a certain Horse Society in America went to a shop to order six gold medals for a big show and the man said to him: "Are those all you require?" He said "Yes, what will be the price?" "Well," he said, "If you take six dozen they will come very much cheaper per medal." "Why in the world would I want six dozen," said the Secretary. "Oh," said the merchant, "I had a man, with the stamp of an Exposition in Paris, who ordered several." That was the man who owned these stallions, and he sent a medal out with each stallion, and sent these animals out as Gold medallists. I shall tell you something more of this man. He bought a Clyde stallion and entered him in the Percheron Stud Book, and he is serving as a Percheron to-day.

The sooner this is stopped the better, as it is doing a vast harm all through the districts where these horses go.

Another thing I saw in the Northwest were some stallions that the owners purchased as Percherons, and they were half Clydes. They allow these animals to come into Canada duty free, but if you wish to send them back to United States they would not take them back, so I think we should look to the matter, and see that they pay the duty or not allow them to come in at all.

I do not wish to convey the idea that those good Canadians who went to the South African war could not ride. What I wish to convey is that many more would have been accepted if they could have ridden.

I also wish to say that I do not think the Clyde and Shire breeders should amalgamate their stud book. Distinction in breeding the two has gone too far, but the farmer who only breeds for sale would do well to cross the two animals in order to get the substance lacking in the one and quality lacking in the other.

ADDRESS.

By Hon. John Dryden, Minister of Agriculture, Toronto.

I am very glad to know that the Horse Breeders' Association is endorsing what may be called the educational features in connection with this exhibition. I am pleased to be present this evening and to have heard Mr. Spark in his discussion of various tpyes and breeds of horses. I am quite as much interested in the breeding of horses as in the breeding of cattle or sheep, but have always treated all classes of live stock alike, and

the breeders of every class have had reasonable assistance so far as it could be given by the head of the Department, and, as you are aware, the grants made to the Horse Breeders' Association are similar to those made to other kindred associations. It is a mistake to imagine that there is any public sentiment in this Province against horse breeding as an industry. If I were asked to decide between the breeding of horses and other farm animals, as to this particular point, I would say that the vast majority of our people look upon the horse breeders with greater respect than they do upon any other class of breeders.

I desire to repeat here the statement which I have so often made on other occasions, and that is, in breeding any class of live stock, it is just as impossible to reach the highest results without a definite design as it is to erect one of the finest buildings in the city in a hap-hazard way.

I think you will agree with me when I say that if any one class of our farm animals has been neglected in reference to this point more than another, it is the class of horse produced on the average farm of this Province. This statement is not correct in respect to registered horses. I think that all classes of registered horses have been well studied, and are being bred with a definite purpose in view, and, in later years, considerable progress has been made in the direction of uniformity of production. But the vast majority of the imported sires hitherto used have been crossed on the common mares of the country with ever varying results, so that the question naturally presents itself, can the situation so far as the breeding of horses is concerned be improved, and if so, how is it to be accomplished? My opinion is that considerable improvement is possible, but that it must be brought about in the same manner as other classes of stock have been improved, and that is by scattering correct information and arousing enthusiasm among those interested.

In my judgment, the first thing it is necessary for us to decide is, what class or classes are needed? Let us have some ideal—some model placed before us, and then we may bend our energies towards producing it.

I should be inclined to divide the horses that are being produced at present into four classes: First, the general farm horses; second, heavy draught horses; third, carriage horses; fourth, ordinary road horses. The first class I have mentioned would naturally include various types, for the reason that an animal which does not reach the ideal in any particular class may be utilized for farm purposes, and in an ordinary way this is always carried out; if the aim be to produce a carriage horse, and the resulting horse lacks in size or weight, it may be utilized on the farm.

My judgment would lead me to say that we have in the western part of the Province at any rate, the best foundation already laid for the production of heavy horses. Such horses have there been used in the past to considerable extent, and most of the ordinary working horses have more or less draught blood in them; so that for improvement in that respect the farmer has merely to study the weight of the sire, the development of muscle, and the quality of bone, in addition to the general conformation, so as to enable him to reach the highest success.

For the other classes, it is manifest that we must depend upon mares of entirely different types as well as breeding. How shall these be mated properly? Who has definite knowledge? I submit to this meeting whether I am not right in saying that the results of our breeding in reference to these is absolutely a matter of chance. Occasionally horses of a superior type are produced such as have been shown on the canvas to-night; others undertake to produce such a horse but do not succeed, and become discouraged and disheartened, so that it would appear to me that there is great need for studying the principles of breeding. Information should be given to the farmers in reference to these points. They ought to know something of the value of an impressive sire; they ought to understand what it is that constitutes such a sire. They would probably discover by so doing that the reason why the fine hunters shown upon the canvas were produced was largely on account of prepotency of the sires.

Thoroughbred horses have been bred along definite lines, until the qualities they possess have been stamped into their nature so strongly as to overcome the power of the female, and, therefore, the progeny is fashioned practically after the sire. No general rule can be given; every mare is somewhat different; so that the farmer needs to have correct judgment, and different advice would probably be given to different persons as to how best to succeed. If we are to attain the best results, all our farmers ought to be in possession of knowledge of the principles that govern breeding, and then to be able to make a choice of the sires they deem best suited for their purpose.

This brings me back to the starting point.—what horse should we produce? If that question could be settled, then we might devote our attention to how to produce the best results; it would give definiteness of purpose instead of the haphazard plan that is ordinarily followed. I am not saying too much when I assert that the ordinary man has no idea of the particular class of horse he is seeking to produce. He undertakes simply to produce a colt, and waits patiently to see what it will be like. Frequent discussions, such as are being carried on here at these meetings, would not only give us the information I have suggested, but would lead us towards a concensus of opinion as to the best methods to pursue.

There is one other matter to which I desire to refer. It is the contemplated convention of stockmen from various portions of the Dominion called to meet at Ottawa this week. Personally, I am ignorant of the subject sought to be attained, but from articles I have read in some of the agricultural juornals of the country, it would seem that, in the minds of certain persons, there is the thought that the matter of registration is to be dealt with. I want to warn you that in your own interests you ought to be the guardians of the records for the various breeds you represent; I feel sure I am right when I say there should be no other controlling body. I am prepared to take strong ground in this connection against all comers, perhaps because I have already been through one fight in reference to this matter. Years ago the Shorthorn record of this country was carried on by the Agricultural and Arts Association. This was a responsible body of men, with whom no fault could be found, but the principles upon which their record was based were, in the judgment of the breeders, entirely unsound; yet they could not be induced to change them. The breeders, therefore, combined and broke away from this organization, starting their own record. They gained their point, and to-day practically all the records are based on the same principles. I do not want, therefore, that at this late date we should lose what we have already gained. Who, I ask, should settle the rules and regulations upon which the record is based? I answer, not departments devoted to agriculture, nor any other branch of our political machine; not those who may be styled politicians, but the men who are in the business, who own the animals, and who have invested their money in them. Our present system is sound in every respect. All these matters are now controlled by the combined judgment of the men interested in the breed. The moment a man invests his money and pays his membership fee, he has a right to be heard as to the basis and control of these records. Our system is much better in this respect than many of the systems of registration adopted in the United States. In many instances in that country the records are controlled by joint stock companies, and the stock, having all been secured, it is impossible for any new breeder, who may have invested his money in the business in recent years, to become possessed of it, and, therefore, he is excluded from any voice in the control. It would be difficult on that account to combine the records of many of these breeds. In Shropshire sheep we have but one record for the entire continent. This record is controlled by the breeders who are members of the Association. The system has been found to work satisfactorily, and the larger the area covered, the better the system works out. I hope, therefore, that our breeders, of whatever class of farm animals, will stand united on this point so that we shall not in any sense lose the advantage already gained.

BREEDING OF DRAUGHT HORSES.

By Robert Ness, Howick, Quebec.

The subject which I desire to bring before you at this time, viz., "The Breeding of Draught Horses," is one of great importance to all interested in the welfare of every farmer in Canada. The breeding of domesticated animals for the various purposes to which they are adapted has been practiced from the earliest times.

The oldest writers on agriculture give directions for the breeding and improvement of live stock, and many of their maxims are repeated to this day as the best practical guide to the breeder. Before going into detail on any one breed, we will consider some of the principles which underlie successful breeding.

First, the most important is heredity. Heredity, so well expounded by Darwin, is the perpetuation of like characteristics in parent and offspring. The general principles which govern the transmission of hereditary qualities from parent to offspring are without doubt the same through all animal life, and forcibly expressed in the familiar saying, "Like produces like," and as an influence of this generally accepted law of animal organization we would naturally breed from the best. This selection as "best" must not continually change, else no progress can be made.

I have noticed repeatedly in the locality where I live breeders who have been using the very best draught sires available for years, but at the time horses got so low in price they felt it too much to pay for the service of a heavy pure bred sire, and they would use a small, light-boned horse of any breed (or no breed), and the results in all cases were extremely disappointing.

The first step for the breeder to decide is what sort of a horse will bring him in best returns. Success in breeding of live stock must be measured by the actual value of the products, and the profits that may be derived therefrom. If his interests lead him to breed for the race course, he must keep constantly in mind the fact for that purpose, whether running or trotting, speed and endurance of the very highest order is indispensable. But if the breeder prefers a direct livelihood therefrom, he had better leave the breeding of race horses to the man with the money.

For the ordinary breeder, he must consider the horse that sells best in the market, or rather the horse for which there is greatest demand. At the present date there is an unlimited demand for the heavy draught horse, say, from 1,500 pounds and upwards, as heavy as possible, without departing from quality to obtain such weight.

Now, we would have to decide what we were going to do. I think it is a matter of great importance to have a decided idea, as our worthy Minister of Agriculture has said. We must have some idea of what we are going to do, but I think more in the horse line than anything we undertake. We must have a decided idea when we start to breed horses, and unless we have that in view always, we will never succeed. Some men will use a thoroughbred one year on his mares, a Clydesdale another year, and the next year a Percheron, but I assure you they certainly cannot succeed, and I think it has been clearly proven, and most of you understand that.

I shall now give you my views as to what is required of a sire to get the best results. You must first investigate his pedigree, which, as you all know, consists of the names of ancestors for a greater or less number of generations. Its value consists not so much in the number of generations through which the ancestry can be traced to some progenitor, as in the quality and character of the ancestry, or the merits of the individual who compose it. Having satisfied yourself of his breeding, you now secure the form of horse desired. There are several breeds of draught horses, all of which have their qualities and faults, but for the purpose of description I will try and enumerate the points necessary in good draught horses: First, I would have the horse walk to see his action and general look; satisfied in that point, examine the foot—"no foot, no horse." In shape the medium between a flat and a mule foot is preferable, of good size, with a large degree of concavity in the bottom; they must

also be firm and elastic, without cracks and free from brittleness; the fore and hind legs should be set on straight, as an out or in-toed horse is very objectionable; the pasterns of medium length, and set on rather oblique, so as to give the necessary elasticity to counteract the concussion caused by the firm step. If long, they are weak; if short and upright, they are liable to knuckling.

The knee joint should be broad and flat. The hock wide from before backwards, giving the leg a somewhat crooked appearance, rather than straight, the former giving strength. The length of bone short from the knee and hock to the pastern; when standing, the hocks should tend to be close together.

The indication of a good leg is firmness, hardness and smoothness to the touch, showing an entire absence of adipose tissue; large, well-defined joints, entirely free from any abnormal appendages. The head should be of medium size in proportion to that of the body. The forehead broad between the eyes, tapering upwards in the direction of the ears. The jaw broad, but not loaded with flesh. The nasal bones, if not straight, slightly arched, but not dish-faced. The muzzle not too refined or tapering, with the nostril wide. The eye bright and dark, full and vigorous, yet mild. The ears of good size, tapering to a point, neither hanging, showing sluggishness, nor prick-eared, but with frequent action, indicative of a good disposition. Such a description of the [illegible] finish [illegible] complement, which latter must be [illegible] breeding sire.

The neck of good length, clean cut at the jaws, and well set out at the shoulder, with a gradual tapering, but slight arch from the occiput to the highest point of the withers. The chest must be broad, deep and full; a hollow chest suggests decided weakness. The shoulder should be well set up at the withers; the back should be short and strong; the ribs of great depth and rounded, barrel-shaped. He should be full at the heart, and girth well, allowing plenty of room for the expansion of healthy lungs. The length or depth of body at the last rib should be great, as this is too often a defect in [illegible] and [illegible] suggests a poor [illegible] often gives him a leggy appearance. The hind quarters of good length, well-muscled and round, the thigh being well developed and strong.

I may say in my experience, and I speak more from a Clydesdale point of view, I have been very often told by my neighbors that I imported too much of a "quality horse." They wanted something better for this country. I have often asked these same people where they expected to dispose of their surplus stock. The Scotchmen have decided that the horse with quality, and with as much size as possible, is the horse they want.

If you will allow me I will tell you what I heard from a Frenchman. I was home some thirteen years ago, and a little too late to see the horses judged at the Grande Exposition Versailles. I went around and saw the horses after the prizes were awarded, and saw two very fine horses with prizes, but either of them were good enough for first prize. I spoke to the manager of the establishment, and said they were good horses. I saw a big, strong, heavy Percheron horse, a horse perhaps two hundred heavier than the other, a horse with length of body and strong bone, and a horse that would carry a great deal more beef if put on him, and coarse made all through. I said, "What do you value this horse at?" He said, "I want $1,000." I said he was a fair price. The other horse, just as nice a type horse as you will see in any other country, well-made and beautiful limbs, and looked like a horse of strong endurance, and one that would stand a good day's work. I asked him how he valued this horse He said, "This horse we do not sell; we raise this for our own use; the other for the Americans." I thought this strange, but he said, "We do not want this kind, but the Americans want them big and large bones, regardless of the quality, the ones that measure and weigh well." I am sorry to say too many importers in the past have been following these lines; they have been going more by the size, and will get a tape measure and measure the bone and the girth. Then, how much do they

weigh? That is invariably the case with the foreigner. I may say the best horses in England and Scotland never had a tape on them; they are able to judge them by the eye. They must be able to judge by the eye over there, and they think a man does not know much when he gets out the tape and asks the question, How much does he weigh? You get a horse with a good, clear bone, and he measures less. One thing clear, the Scotchman up to his business never thinks of putting a tape on a horse or a horse on scales; he gets a horse with quality of bone, and in proportion to his body.

This Frenchman considered the type a thick quality horse more than the large, coarse horse, and I am proud the people of this country are coming to that.

I remember a man in our section had a very big horse that measured well. A gentleman asked me if he had passed to-day yet. I said I did not know. He said, "I can tell you, because if the road is dry I can follow his tracks right along the road." He was bad in the legs and leaking. That is the kind of horse the Scotchmen are glad to see leave their country. What we want to-day is a thick horse, a better quality horse, and I am proud to say, especially in Canada, we are making great strides in that direction, and we should follow this line closely.

The general management of the sire is of great importance. It is a common mistake to have the sire in fine show condition when the season opens, and apparently in the pink of condition; he is not nearly so well fitted for service in the stud as he would have been had this extra feeding been dispensed with. Such treatment is a drawback to a horse as a foal-getter. The point to be aimed at in the stable management of the sire is to feed, groom and exercise so as to keep the horse up to the highest pitch of strength and vigour; he should be well and regularly fed on healthy, nutritious food, with plenty of exercise every day, well groomed, the skin kept clean by frequent brushing and rubbing, which also keeps the circulation in good order. A healthy animal needs nothing but good food, pure air, plenty of exercise, with due attention to cleanliness, and regularity of feeding and watering, and if such be attended to but little will befall him unless by accident. He should be kept in a loose box twelve by sixteen—more if possible—admitting plenty of sunlight, and well ventilated, containing internally as few projections as possible upon which he may injure himself. It is well to have the loose box lined around with heavy material, standing out at the floor about one foot, sloping upward and inward to the wall, about three feet and one-half high. By so doing it will be impossible for him to injure himself by rubbing or in any other way. In such a box he need not be haltered, and the owner may feel assured that the liability to injury is reduced to a minimum.

Mr. Ness then had a picture of "Baron's Pride" thrown on the canvas by means of the limelight view. He said you would never get a horse of this character to show his tracks along the road. They wanted a horse with good, clean bone in the leg, and the hair of a long, silky nature, and as little as possible. If the foot was right they could get along with what was above. He said the body should be right, but, as the Scotchman said, "Get the foundation right, and you can get the body to suit you if the feet and legs are right." The great trouble with the American people, said Mr. Ness, was they looked too much to what a horse would measure in the legs.

Continuing, he said: A great deal has been said about the size of a horse. I do not think there are very many good Clyde horses over a ton. I do not think "Prince of Wales" ever weighed over a ton, nor "Baron's Pride." I hear men talk of horses twenty-two hundred, but I am sure if those men were put on their oath the horses would not weigh twenty-two hundred. The English Shire horse is certainly very heavy, but the Clydesdale over a ton is not desirable.

I remember a friend of mine went home to the Old Country, and he said you ought to bring bigger horses. I was then following the best breeders in Scotland, and imported horses before there was a book, and I might say here, I believe if Lawrence Drew lived there would be no need for two books. I imported horses three or four years before there was a Stud Book, and Lawrence Drew at that time had the finest

animals I ever saw, and, I might say, I saw there what I never saw before. He had twenty-five two-year-old colts, and not a man touched them, they were all attended by women. He said: "The men are too harsh, too rash, and I can bring up better colts in better shape than if the men looked after them." These women could lead out the wildest two-year-old, and the men were never allowed to touch the colts.

As I said before, if Mr. Drew had lived there would have been no need for two books, because I think a good Shire horse would make a good Clyde horse, and a good Clyde horse would make a good Shire horse, and, I tell you, the culls of either of them are not worth having. I would not like to see the two joined; I think there is room for both. It has gone so far there is room for both. The Shire horses are larger than the Clydes, and bred in a warmer climate, and I think the climate has something to do with it. I know in this country we have more trouble in bringing up a horse. In the Old Country they have a better climate, and everything is in their favor to come to maturity. I think you in Ontario are a little more favored than we in Quebec, as we have to stable longer in the winter, and the horses do not come to maturity as quickly; but we have much reason to be proud of our country, and I have seen horses that have gone from here, and they were as much admired as any other horses that ever went into Great Britain, and when they are acclimatized they say they are the hardiest horses they get from any country.

Mr. Dryden: It appears to me that "Baron's Pride" has a head indicating a good deal of character.

Mr. Ness: I like a horse with a good, bold eye; get a horse with a small eye, and he is a hard one to manage.

Now, as to selection of dam. The same may be said as in the case of the sire. It is desirable that she should have a great depth of body, with well-sprung ribs. As a rule, the female of any animal is somewhat finer in build than the male, and seldom reaches the relative weight of the sire. She must, as in the sire, be sound and free from any vicious temperament What was said of overfeeding in the sire also applies to the dam. It is not desirable for her to breed before the age of three years old; if she be younger, or if she be too old, the foal may be small and weakly. When the time for foaling approaches the dam should be turned loose in a large box stall, or if the weather be mild in a paddock. About the best time for foaling is May, as there is abundance of grass or green food, and this is before the heat of the summer sets in. The mare should be closely watched when she is a valuable and well-bred one, and the foal expected to be a good one, as it is well worth watching her closely, as many valuable animals have been lost, which by a little attention at the right moment might have been saved. For a certain time before foaling she should be fed on soft feed so as to keep her bowels open and free from constipation. Many mares are at best poor nurses, but her food may be made to greatly influence her yield of milk. It is always best that the foal should get the first of the mother's milk, so that the bowels assume their natural function. Until at the time of weaning the foal should have free access to its dam. After eight or ten days of age, if in a good, healthy condition, you will probably have but little trouble with it.

I have found in my experience to halter a colt as soon as possible is the easiest way to get it under control. I think by haltering it when a few days old and getting it as soon as possible in a closed place to begin to take something more than its mother's milk, by the time you wean it it will take almost anything, and you will have no trouble when you wean it.

The weaning of a foal should be done gradually, as it is well to have the foal taught to eat all sorts of food before removing it from the dam, and it should be handled well and carefully from its birth. If such be carried out properly when weaning time has come, which should be at five or six months, confine the foal in a loose box in which there is nothing to get entangled amongst, and feed it on soft feed, which

you have already taught it to eat. It is much better to separate them entirely. In the meantime the dam's diet should consist of dry food, and it is well to put her to work. The milk should be removed, but not milked dry every time. With dry food and work the secretion of milk will soon cease. From this time until the foal becomes a yearling it should be well fed, as a stunted foal never matures properly, and more colts are injured during the first six months by too scanty a supply of food than by the other extreme. As soon as the foal is properly weaned it should have the run of a good pasture, as there is no food better than grass, no medicine as good as exercise, fresh air and sunlight.

We will suppose the foal to be weaned and turned to grass for some time through the day, and put in the stable at night and fed a little oats. As soon as winter sets in the foal should have a loose box, and be let out every day for an hour or two, feeding a little bran mash, a few carrots and clover hay. In that way it will come out in good shape in the spring. And by using it to lead by the time it is weaned, it will lead like an old horse, and if continued right on until it is ready to break to harness there will be no trouble; in fact, it is already broke.

When the colt is two years and on-half old yoke him along with a steady aged horse, and he will walk away without trouble. Use him to light work the first winter, that tending to harden his shoulders, and by the time the seed is sown he will be able to do quite a lot of work with great ease. Always be careful not to put him to the hardest work, and from that time on he can take his side at anything that is to be done by the average farmer in this country.

Pay great attention to the feet; they should be examined with care every two weeks, paring and rasping them in right shape, as many horses are ruined by neglecting the feet when young. I would urge this strongly upon the breeders, and if more attention is given to the feet of the colt you will have more horses going straight, and there will be fewer ringbones, and it will lessen other diseases of the feet.

Q.: What kind of hay would you advise for a stallion, timothy or clover?

R. Ness: Our experience has been clover hay. We find that clover hay is the best food we can give young stock, and even stallions. Good, well-kept clover hay is just as good as timothy hay and a considerable quantity of grain.

Q.: Did I understand you to say that you did not feed foals anything but bran?

R. Ness: Carrots.

Q.: You would not make any particular preference between carrots and turnips?

A.: From the experience which we have had, I think carrots are preferable. I may say I had a great quantity of ensilage, and I may tell you the stallions will leave the best clover hay and eat the ensilage instead.

Q.: Can you get them to eat clover hay after eating ensilage?

R. Ness: If they get too much ensilage, they certainly will not touch clover. We limit the quantity of ensilage.

Hon. John Dryden: I think any gentleman who has not got the carrots can safely feed the turnips.

R. Ness: You know we used to grow white peas, and I heard a remark once, "You don't want to feed too much."

Hon. John Dryden: The greatest difficulty I have had for years on my farm at home is feeding too much hay. I think we have to be careful of a horse, as he is something like a man. And do you know, the half of us are killing ourselves by eating too much.

R. Ness: We do not want to say anything to men who are good feeders, but we want to say something to the men who will not feed at all.

Q.: When you speak of feeding your colts grain and bran, have you ever tried barley?

R. Ness: Barley is very heavy, and I think it is a dangerous food, fed alone.

W. S. Spark: Don't you think it is too heating?

R. Ness: Yes. We mix barley, peas and oats, and grind them, but do not feed this alone, but mix with cut hay or a little bran, or something of that nature.

W. S. Spark: Don't you think it is desirable to occasionally change the feed of horses, and not constantly give them the same?

R. Ness: Yes, sir. I am of your opinion. What applies to man certainly applies to the horse.

Q.: Is it not a fact that a sudden change in food is dangerous?

R. Ness: When I was home in the Old Country, I noticed Mr. Montgomery had these big turnips boiled among the cut hay and mixed up. I think it is the finest food for a horse to eat: it is a particularly light food, and serves the purpose. I think it best serves the purpose.

Q.: Do you not think sheep food has a tendency to make a horse form bad habits?

W. S. Spark: It is not good for a horse.

R. Ness: In my experience I have found the Scotchmen are very fond of feeding molasses and sweets, and you will notice a great many horses sent here keep licking and licking, and from that they get to cribbing. This is on account of getting these sweets. I had a horse returned to me because he licked his tongue.

Hon. John Dryden: I want to impress on you the advantage of this kind of a meeting. I remember some years ago I went to a meeting of the Poultry Association, and suggested to them at that time, inasmuch as they were using some of the money of the Province, that they have a discussion on poultry matters, and a report be given to the people. They never did anything like that before, but they started a little discussion and I may say when they got through there was scarcely a man there who had not learned something. There are young men here who are anxious to learn, and would give a good deal to learn a man like Mr. Ness. This kind of a discussion brings out points which are helpful to the breeder.

Q.: In feeding bran or cut feed or grain, do you damp it or feed it dry?

R. Ness: Our habit has been to put in about half grain; that we would feed them dry; put in considerable cut hay, and boil that, and then put in considerable bran, to give them a good feed each, and we find it does them more good than double the quantity of dry grain. We feed working horses clover hay pretty much and oats; they some times get a loose feed, perhaps a quarter feed a day of chopped hay and soft food.

Q.: What do you think of boiling oats?

R. Ness: We boil what we grow, a little barley and little peas and oats, and it is what we call mooley when we have all grains mixed together.

Mr. W. E. Wellington: I agree thoroughly with the suggestion Mr. Dryden made regarding these meetings being held throughout the country, and it struck me that he, at the head I suppose of the Farmers' Institutes practically, or at least in a measure directing them, why could we not have lectures on horses at the Farmers' Institutes? We have lectures on fruit and various other subjects, but I am not aware that the matter of the horse interests have ever been taken up at these institute meetings. Now, I consider a lecture illustrated on similar lines to what Mr. Spark has given would be of universal interest all throughout the country. And if we had practical men go throughout the country and promulgate ideas on proper lines of breeding, there would not be the trouble the stallion owners are having to-day with farmers and other breeders breeding to inferior stallions just to save a few dollars, but really losing dollars in the end. If the people were educated to the proper way of breeding and to the necessity of breeding on proper lines, it would be a great good to the country, and a great good to the farmer.

There was one other remark regarding feeding I would like to say a word on, and that is feeding too much hay. I am considerably interested in horses, and although not amongst them as much as I would like to be, I never go into my stable but what I get rather irritated because of feeding too much hay. I do not want to go into a stable

that I can see hay lying on the floor and wasted, and that is too often the case in the farmer's barn. Now, in the city you do not find that the case to the same extent. Where I keep my driving horses I take particular pains to see that the horses just get a certain portion, and the horses get their meals as regularly as mankind, and they are better for it.

R. Ness: We have get into the habit now we never put straw or hay in a box, but put it down before the horses in a corner, right on the floor; they eat off the ground, and do not waste it, because we do not give them too much.

Mr. Spark: In the Old Country we have a way of feeding horses from a rack. I hope you do not do much of that here. Many horses have had their eyesight injured from that, and everybody knows how painful it is.

R. Ness: Our French-Canadian friends are very fond of feeding horses high, and the result is the horses are all weak-kneed.

Q.: How much hay would you give to a light driving horse?

R. Ness: It is necessary to use your judgment, as there is no cast-iron rule; but do not give him too much hay.

Q.: You would not give hay three times a day?

R. Ness: Yes; give a little and often, and it is better for him.

HORSE FEEDING.

By J. H. Grisdale, Agriculturist, Experimental Farm, Ottawa.

It is with a great deal of diffidence that I appear before you to-night, as this is an Association which I have never had the pleasure of addressing before, and I propose to speak upon a subject upon which I have not talked very much in public heretofore, although I have devoted to it some considerable study, both theoretical and practical.

I want to say a few words about horse feeding. There has been a good deal said about horse breeding in order to produce the proper kinds required for the markets, but I think if there is one thing more important than another to the Canadian breeder, it is to study how to feed Canadian horses in such a way as to make them the very best heavy horses in the world, for while breeding in the right lilnes is most certainly important, feeding sufficiently, wisely and well is certainly equally important, not only to the breeder, but to every man who handles heavy horses, old or young.

Feeding, I think, may justly be called an art, but in this art, as in all others, there is more or less science, but we cannot hope to discuss the artistic side to-night, because every man will do his best along that line, and must learn through practice. We can discuss, however, some of the elementary principles which are concerned in feeding horses.

To begin with, I think the feeder of draught horses should ever have three great objects in mind:

1st. He must feed his draught horses, especially the breeder, in such a way as to develop as much size and subtance as possible.

2nd. He must make the substance such as will be useful in draught horses, that is, muscle and bone rather than fat, and

3rd. He must feed them in such a way as to keep them in the very best health.

These three points every breeder of draught horses must consider, and it is with these principles in mind that I take up the discussion to-night.

Stallions.

Beginning with the breeding horse, I shall not say much about stallions, because the feeding of stallions will necessarily be quite similar to the feeding of draught horses at work. The same principles and same feeds will be equally valuable in either case.

There is only one thing that possibly needs emphasis, that is, the conditioning of stallions before they go on the road. I do not know what condition they are put in in this part of the country, but in the East some stallions go on the road rolling in fat, and not in shape for work at all, and as a consequence many mares come around again and even twice or three times. Therefore, the conditioning is a point to which we should look most carefully, and every precaution should be taken to feed and exercise in such a manner as to develop muscle and a good, healthy condition rather than fat. Of course, they must be kept looking as sleek and fine as possible, but the breeder cannot overlook condition, and the good feeder will get both appearance and condition by a judicious blending of feed and exercise.

Brood Mares.

The mare will naturally take the attention of the average breeder more than the stallion, and to begin with the man who is interested in breeding good foals must see that the mare is perfectly healthy, and must ever feed with such food as will insure a good healthy condition in her as well as in the stallion. To insure this, it is frequently thought advisable and necessary to give condiments or condition powders. This is an injurious practice. There is a great mistake made in feeding many of these prepared foods or prescriptions.

After the mare has been served, she should be fed good, nutritious food, that is, food that forms bone and muscle, foods rich in the elements which are necessary for the development of the life fluids that go to build up the young animal or foetus in the mare, and probably the best of these is grass.

The mare is generally expected to work, but great care should be taken not to submit her to any great strain. More than ordinary care should be taken when she is working to see that she has sufficient food, and to guard against over-working or over-heating, because every violent change in temperature, over-work, or any diseased condition of the mare will affect the foetus, and the foal which will be delivered in the spring may be expected to reflect the condition of the mare through pregnancy. To insure a good, sound foal, the mare should receive the best, sound food; no rotten food should be given, nor should she be exposed to any great inequalities of temperature, such are due to giving large quantities of cold water, etc. As the period of pregnancy advances, still greater care must be given the mare, and the quality and character of her ration should be carefully considered. Boiled roots perfectly free from rot, a little bit of sweet, clean hay, a small portion of bran, a handful of oats, and a sufficiency of purest of pure water will surely keep her right. Immediately after foaling the conditions are changed and the feed should then be such as will produce as much milk as possible, and keep her in such a healthy condition as to enable her to nourish her young, and keep it growing rapidly. The best food is grass. A little supplementary meal, say, oats and bran, with a small amount of barley, will often be found valuable. The changing from dry fodder to grain when a mare has a foal on her is a critical time, and the change should be made very gradually, because any change of food which induces a disorganization or derangement of the digestive organs of the mare will bring on a like condition in the foal, therefore great care should be taken to make all changes in food graudually.

A point not infrequently neglected is the care of the mare for a few days after foaling—that is, the keeping of her body perfectly clean. There is frequently a discharge from the uterus, and this should be kept washed off clean, and particular care taken that it does not descend and pollute the udder. I have seen some of the very best colts in the heavy classes practically ruined because of neglect of the condition of the mare at this period; the fluid which escaped was allowed to run down and affect the udder, and in that way brought on disease in the foal. I feel that I cannot emphasize too strongly this point of cleanliness. This is, of course, somewhat out

of the line of feeding, but it affects the foal feeding operations, hence the apparent digression.

The food of the mare during the summer should be, as stated above of such a character as to induce the greatest flow of milk possible. In addition to the grass and supplementary feeds mentioned above, I do not know anything that would come in better than a little raw potatoes or sweet apples. The food should always be such as to insure milk of a first-class quality, because on the quality of the milk as well as on the condition of the dam will depend the quality of the future heavy draught horse. As the period of lactation advances, it will be necessary to give more food. Generally speaking, a mare at this period is starting off in foal again, and has a double burden to bear, hence requires undoubtedly the very best foods available. To summarize, the foods best suited for milk production are bran, roots, clover hay, peas, oats, grain in sheaf, grass, apples, potatoes, and all other foods succulent, wholesome, and rich in protein

As the weaning period draws on it will be necessary to give greater attention to both mare and foal.

But just at this period I think we should go back to the beginning of the life of the foal, and discuss the conditions and treatment or feed necessary from birth to insure a fine animal at maturity.

In the first place, we must get it started to suck the mother as soon as it is able to stand up. Very frequently the colt may be persuaded to suck by drawing a little milk from the teat and rubbing it on the outside thereof.

The first milk is absolutely necessary for the health of the colt, because when the colt comes there is contained in its intestines a quantity of matter which needs to be expelled almost immediately, and there is nothing which will bring on the necessary slightly laxative condition of the bowels more rapidly than the first milk of the mare. If this does not seem to act at once, a little castor oil might be given, and in addition an injection of warm water, about one hundred degrees Fahr., with a little glycerine mixed, may be found advisable. If the milk of the mare seems to be insufficient for the foal, this may be supplemented by cow's milk. If cow's milk is to be fed, it will be found absolutely necessary that the milk come from the same cow, or be of a uniform quality or uniform character generally. Analyses show the milk of the mare to contain about twelve per cent. of dry matter, three-fourths of which, or about nine per cent. being sugar. In the case of the milk from the cow, only about four or five per cent. is sugar, indicating that some sugar should be added when fed to the colt. Further, cows' milk contains three and a half per cent. to four per cent. of fat, while the mare's milk contains one per cent.; cows' milk contains one per cent. of protein, while the mare's milk contains about two per cent.; so to get the best results it will be found advisable not only to add some sugar, but to dilute the cow's milk, about two parts milk and one part water. The milk should be always uniform in character, and fed always the same as to quality and sweetness, and fed always from a clean vessel. Anything that is unclean conduces to indigestion, and indigestion is the colt raiser's greatest enemy. As the period of sucking advances, it may be found advisable to supplement the milk of the mare with a little chopped oats. Some men that I know have had the oats chopped, and the hulls sifted out; others say it is just as well to leave the hulls in. I prefer to have the hulls out, because the stomach of the colt is not very well adapted for the digestion of rough matter, and coarse materials such as oat hulls is difficult of proper digestion. Therefore, I think it advisable for a time not to feed oats with the hulls left in, and would suggest a small amount of bran be given instead.

As the time to wean draws on, it will be found advisable to give a little hay. The most suitable is a little clover, cut on the green side, and cut from a field growing thickly and necessarily fine, that is, with as small a proportion of stems as possible.

The weaning process may be rapid or slow as suits the convenience of the farmer, and the condition of the mare. Probably the most critical period of the colt's life begins with the weaning.

The draught horse is made or marred from the time of weaning till one year old. Judicious and generous feeding during that time insures a fully developed animal, niggardly rations or unsuitable food must always bring disaster. Those who neglect the feeding of their foals properly the first year are the ones who produce agricultural horses from what should really have grown into draught horses, because on the proper and sufficient feeding of the foal the first year will depend whether it develops into a horse fifteen hundred or over, or not.

The best food is good clean clover hay, oats, bran and oat chop, and roots. The roots that may be fed are of various kinds, but the roots they like best are sugar beets. It is not always possible to give them this kind, but it will be found profitable, I think, to the average horse raiser to grow a few. Of course the nutritive elements in sugar beets are not quite as well proportioned for the production of muscle and bone as are the elements which are found in mangels and turnips, but the inducement which is offered by the sweetness I think possibly more than makes up for any lack in the very essential qualities which are found in somewhat better proportion in the other roots.

After the first winter is over, the summer, of course, is always passed upon grass, and the only point necessary is to have a sufficient quantity of good grass. The keeping of horses upon the one field year after year—and probably it is cropped half bare by other animals—is a great mistake. Great attention should be given to the pasture upon which horses are turned, both colts and mares with their foals. They should be changed about from time to time, because if they are left to graze upon a given field for any great length of time it is likely to become infested with parasites, just as those who have sheep grazing on a given field for a long time will find it infested with parasites. Of course this practice of leaving horses long upon a given field is not so common in most parts of Ontario as in the more easterly parts of Canada.

During the second winter of the colt's life he may be expected to rough it a great deal more than the first.

I do not say that he should be expected to get along upon what he can find when feeding around the straw stack, but he may be expected to live a good deal more cheaply than during the first year; that is he may eat more cheap food or straw and develop into a rough strong animal. The big, strong, rough two-year-old is, I think, a sure indication or the foundation of the choice gelding or horse at three or four years of age.

Feeding Work Horses.

Now leaving aside the feeding of breeding stock, I want to say a few words about feeding farm horses, and the more essential or common feeds. We have been experimenting at Ottawa to determine the value of some of these, and the influence affecting the economy of feeding One line along which our experiments have been taken up is regularity. Horses which are fed at a given hour, and always at this given hour, we find have done far better for the amount of food consumed than those at irregular periods.

The amount of food which will give the best results varies in the individuals fed. We have found horses working hard do best with about one pound of hay to one hundred pounds in weight and a pound of meal to every hundred pounds in weight; that is, two pounds of feed for one hundred pounds in weight. If the labor is hard and long continued we have found it necessary to increase the proportion of concentrates or meal to roughage. If the roughage consists of clover hay free from dust, we find it will come much nearer concentrates in value than if it is cut up or chaffed.

The preparation of the feed is another consideration. We have found a very material saving may be brought about if roughage is cut when fed the grain ground, and the

two mixed together. This is a particularly suitable way to prepare the noon and morning feeds, because there is only an hour or so during which the horses are allowed to eat, and they must have enough feed to keep them going the rest of the day. Again, we find it advisable to give a considerable heavier ration at night than in the morning as it is digested better. This is a point that should be watched. We had considerable difficulty in our stables in connection with this matter, and it is a point which is forgotten by the average feeder because he usually lkes to give them equal amounts night and morning. The mixture of meal and roughage cut up should be moistened, not left to soak some time before being fed, but just moistened before being put in the manger. There is sometimes a little danger of this spoiling, and the feeder should not allow any of this moistened feed to remain in the manger from one meal to the next.

The watering of the horses is a point which as every one knows is of great importance. They should not be watered within two hourse after being fed. The stomach of the horse is small, and if the horse be watered shortly after being fed the water running in carries a large amount of the food back into the intestines and induces indigestion. The water should be free from ice in winter and cool and pure in summer. It should also be given at regular periods.

The salting of the horse is a thing which is quite frequently neglected. If the meal and roughage are mixed together, we find it advisable to add one ounce of salt each day, but if not mixed together it is probably best to have a small board at the side of the manger and put a little salt upon it daily. When changing from a no-salt condition to one of lots of salt, that is, having salt continually before them, great care should be taken because an overdose of salt is quite as injurious as an overdose of food.

Sometimes our horses, no matter how well they are fed, get out of condition, they begin to look as if they did not have enough feed or food not suitable for their requirements. We have found on two or three occasions that the animal was getting too much food. It is quite possible, as you know, to give an animal too much food of a concentrated character, also too much roughage. Under such conditions, the average feeder resorts to condition powders. I have had our feeder ask me to supply him with condition powders, but up to the present I have not consented to do so. The following preparation or mixture of meals will increase the appetite of the horse, it will improve his digestion, and will improve the condition of the skin and quality of the hair. It is at the same time free from any injurious condiment.

We take 5 lbs. ground corn, 5 lbs. ground oats, 5 lbs. bran, 1 lb. oil meal, 1 dessert spoonful of powdered gentian, 1 small teaspoonful dried sulphate of iron, 4 ozs. common salt

Now these substances mixed in these proportions will induce almost any horse to eat. If they will not eat it at first just starve them a meal or two and they will then take it. If they once start eating it the condiments given in this ration are such as can be given in considerable quantities with good results. Start off with a small amount, say a pound of each meal and gradually increase until you are giving the required meal ration of this mixture. You will notice this contains the substances most suited for the nourishment of a horse, barring the sulphate and gentian, which are tonics.

Mr. Ness: Would you not find it beneficial to feed salt along with your ration.

Mr. Grisdale: Yes. To this meal ration you might add 4 ounces of salt, and it would make an ideal mixture. This mixture is quite equal to any prepared mixtures you can buy on the market. We pay from five to fifteen cents per pound for the mixture on the market, while this mixture can be produced for one cent or 1 1-4 cents per pound, and it has all the value of the different foods which are at our command, and are fairly well appreciated by all our farmers.

Values of Feed.

To begin with the roughage, I think clover hay is the best, and the reason more of it is not being fed is due to the difficulty in curing it properly. Now no one wants to

give a horse any hay that is dusty, but if clover has been properly made I am quite certain there is no hay that will do better by the horses; red clover, mammoth clover or alsike will do. In the use of alsike it is necessary to get it cut at the right time; and I have heard certain feeders say it induces a kind of poisoning, but I have never had any authentic proof regarding this.

There is however a forage grown in Ontario that is injurious to horses, and that is millet. This has proven to be injurious to horses, and has no doubt done more or less harm in Ontario or Canada, although the feeders may not have happened to know that millet was the cause of the trouble.

The use of straw as a feed is another important consideration, and it may be given in place of hay, especially if the horses are not working hard or where you are feeding a considerable proportion of bran into the meal mixture. In the case of working horses (and breeding stock, too,) probably the best food for the maintenance of health is roots, and of roots sugar beets probably give the best results. We find there is nothing the horse relishes more than sugar beets. Carrots are good food, horses like them very much, and they help very materially in keeping them in good condition. Another thing that improves a ration materially is the addition of a few sweet apples. I have not had a chance of feeding apples recently, because our Horticulturist on the Experimental Farm seems to think we have a better market in England for them. But if you have a few sound apples to spare, there is no consumer will pay higher price than the horse you are getting ready for the market.

Concentrated Feeds.

Of the concentrated feeds which we have in Ontario, undoubtedly oats are the best. There is something in them which besides making flesh and muscle adds spirit to the horse; and no one as yet has been able to ascertain the reason from analysis. But very frequently oats are expensive, and we have been carrying on experiments to find what foods could be used as substitutes. Probably the most valuable substitute and the cheapest is bran. We can buy bran from $15 to $16 a ton, and a pound of bran to the average working horse is worth as much as a pound of oats. We can usually get a pound of bran for three-quarters of a cent, while oats cost from one cent to one and a half cents per pound. We have also tried corn, and while it is evidently a good food in winter it does not seem advisable to feed it in summer. Barley is another food which we have been using to some extent, but our experiments go to show it is not advisable to use any large quantities as a regular food, but rather as a special food for helping to get the horses into condition, and I find it is one of the foods that will pay to cook, for it really seems to be of some advantage to boil the barley, and if, after being boiled, a small amount of flax seed be mixed in and it be allowed to cool down slowly even better results may be anticipated.

Sometimes the farmers boil the flax seed or flax seed meal. This, I take it, is a mistake. I think if you will consider the effect of a high temperature upon oil you will not boil it. Linseed oil the breeders give as an aperient, but when it is given after being boiled it injures the digestive organs, it becomes a binding food; therefore in feeding flax seed or oil meal it is advisable not to boil it but only soak or heat in hot water below the boiling temperature.

We have found that nothing conduces more to the health in our animals than the admixture of a considerable portion of oil meal and bran in a ration. The bran I mentioned before, but oil meal is better suited for the conditioning of horses than is the bran. It is also very much more valuable in conditioning the horse than would be oats.

Rye, if fed ground, may be used to some extent with profit, but we have found it cannot take the place of any other cereals mentioned.

We have found that food cooked was not more digestible, was not more palatable than the same food when fed raw with the possible exception of barley.

Breeder: What amount of salt did you say you fed horses daily?

Mr. Grisdale: From one to two ounces.

Mr. J. A. McGillivray: You mentioned watering horses two hours after meals. How long would you have them watered before eating a meal?

Mr. Grisdale: Say ten or fifteen minutes before.

BREEDING OF LIGHT HORSES.

By Shelton B. Fuller, Esq., Woodstock.

I was requested to make a few remarks on the breeding of light horses for the market, and as I look around me I see a number of prominent farmers and breeders present; but I will not touch on anything but light horses.

I shall divide them into three sections, first of all harness horses, next saddle horses, and next hunters. We shall touch first on the heavier harness horses, of which the English market consumes more perhaps than the American or our home market, and such horses in my opinion should range from sixteen hands to sixteen hands one inch, and should be in the neighborhood of 1,200 to 1,250 lbs. in weight. They should be bays, browns, chesnuts—the darker the better—and blacks, occasionally a grey, that is if he is dark, or a good dapple. Of course greys are not a very fashionable color for any market, at the same time a good grey horse is not a bad color. And for horses of that class we require them with good heads, good long necks, fairly crested, and good shoulders. Every horse should have a good shoulder, and of course they have got to be well ribbed up and deep good girthers and good quarters, with good croup, and should have their tails well set on. For the old country market they must have lots of good flat bone, and hocks properly placed under them, and of course their feet must be good. No flat-footed horses are wanted in any market. Above all the English market requires good solid colored horses, and they are very particular over there on that point. Soundness of course is most essential in every market.

Now, to breed those horses, the stallions I would suggest to be used would be the Cleveland Bay, the Yorkshire and the larger Hackney horses. With the Cleveland Bay you will get as a rule a very good colt and the Yorkshire produce a very good colt, and perhaps they might be preferred to the Cleveland Bay, on account of being more compact, and giving more action. The Hackney will I think, give more action than the other two mentioned, but they are not perhaps so solid colored. Those are the stallions, I believe you gentlemen ought to use to produce that kind of animal. This type of animal is useful for the American market, useful for the home market, and useful for the English market, and of course this is the kind of horse, we are looking for in the lighter class of horses as well, so that if you don't get the size for the English market you can sell them here.

I shall touch on a lighter horse, one suitable for Victoria pairs, dog-carts, gigs and run-abouts. These should be from fifteen to sixteen hands and weight from 950 up to 1,150 lbs. They should be bays, browns, chestnuts, and even chestnuts marked a little with white does not make much difference, and occasionally blacks and greys are used. One thing I might call your attention to here, and that is no fancy colors are required, such as duns or parti-colored horses. The fancy colors will not bring the ready cash like the others spoken of. Now these lighter horses want more action than the ones used in heavy carriages. You cannot get too much action for this class of horse, and what I would suggest to get that action, would be to breed suitable mares to good Hackney horses, and if you get a high class Hackney or Standard-bred Trotter with proper conformation and action, they make a good cross on our mares. But while the

Hackney will produce better action, at the same time the get of a trotter will take you along more rapidly than the get of a Hackney. And I may say here that the most successful show horses in America are the get of good trotting horses. They have lots of stamina, which perhaps mitigates a little against the Hackneys. The horses that will command the most money in this class are the ones that I call run-about, dog-cart and gig horses, and Victoria pairs.

I also desire to touch a little upon the Roadsters: they are a very valuable adjunct to the breeding classes nowadays. To produce this class you must have good trotting bred mares, as near to the Standardbred as possible, and a little thoroughbred will not injure your mares at all, and these mares should be put to a Standardbred horse, to produce the ideal Gentleman's Road Horse now in good demand.

Canada is growing so fast that there are now a great many gentlemen, who want a good fancy roadster—a few years ago the demand was not so great—but now a gentleman wants a horse to step along, and if he can get it as close as two minutes why so much the better, and the more expensive he will be.

There is another horse, a very useful horse, which in Canada we call the "Combination" horse, this is a misnomer, as the proper name is the "Ride and Drive" horse, but show people call it the "Combination" horse, which I think is wrong. Well the horse, as a rule, I think, should be got by a thoroughbred and should be a good color. fifteen hands three inches is about the height for a horse like that, because that is an easy height for a man to mount, and besides, I think a 15-3 horse is a good horse between the shafts. His color should be pretty near what I explained before, but if a little marked up with white it does not hurt them a bit. This horse does not have to have much action. You do not want too much action in the "Ride and Drive" horse or "Combination" horse, because, although it looks well between the shafts, a man does not want to ride a horse with too high action. This Combination horse ought to be able to go along well in either harness or saddle, and go at the rate of about ten miles an hour, and do it easy. As I said before I think the Thoroughbred is the one to get this class of horse: at the same time I have seen very good ones got by Standardbred horses for this purpose. The Hackney is not so liable to get this class of horse as good as in some other classes because the Hackney is a little inclined to be thick in the shoulder, and gives too much shoulder action for comfortable riding. For heavy harness work the Hackney is the very best stallion to breed from.

To get an ordinary saddle horse—not speaking of Ride or Drive horses, I am speaking of the Park Horse—use the thoroughbred every time. Now this is a horse that must have quality, proper head and neck, high sloping shoulder, short back, tail set up well, and plenty of elastic action. The best size for this horse is about 15-3, but they can be anywhere from fifteen to sixteen hands, and for Park Hacks should not be over 15-3. They want some action, they do not want pounding action, but elastic, and want to do it straight. All these horses for the English market, Canada, or France must have straight action, and should not dish, or knock their knees all to pieces, and the Park horses must have considerable action.

I shall next deal with Hunters. They should be anywhere from 15-3 to 16-1, but there are numbers of good Hunters as tall as 16-2. I have been touching a good deal upon color of all the other horses. Now, when you come to the color of the Hunter, it is not so much consequence, as in the Park Hack or ordinary saddle horses. For instance you take "Roseberry." You gentlemen know well he was a dun horse, and I have seen many dun horses, good hunters, and nothing looks better in the hunting field than a grey horse. I remember as a young man seeing Dr. Smith's "Isaac," and I never saw a finer sight than when I saw Dr. Smith going across the country on this dapple grey. Now these hunters are in great demand, no matter what country you go to. You get a good heavy weight Hunter in the old country, and five hundred guineas is not any price for him. This horse should be got by a Thoroughbred, but you do not

require to have a Thoroughbred mare. However, you want a fairly well bred mare to produce a good Hunter. Of course there are some that are got by Thoroughbreds out of what we call General Purpose mares that make good hunters and jumpers. And when I say general purpose mares, I mean mares from 1,250 up to 1,400 lbs. Some people say you can cross a thoroughbred on almost any mare and get hunters. I do not believe it. I do not think it advisable for any farmer to produce hunters from mares that are inclined to be too heavy. Let those mares go to the Clydes and Shires, and is all right, but they will not produce the light horse. I have seen it tried over and over again, and there is always something "misshapen" about it. You may get good feet and good legs, but there are just ten chances to one, if it does not have a big head, which is very unsightly.

You will notice if go to the cities in the States there are a great many small cobs, and ponies used in that country. The stallions I would advise to use to get these would be a small Hackney or may be a Welsh pony ; but they should be crossed with small road mares, no Bronchos. It is all right to cross those small Hackneys, and these Welsh ponies, and you get what we call a Runabout Cob, and they should be, say fourteen hands or 14 1-2 to 15-2.

Now some people think they will get these proper ponies out of Broncho mares, but they will not. There is a matter we should try and pay more attention to, and try if possible to keep these Bronchos from coming in from the United States. They are being forced upon our community, and our farmers are paying prices for them that would surprise you gentlemen here. The Americans are bringing these cheap horses into our country, and only paying one or two dollars duty on them—I think the average last year was about $1.75 per head for duty—while if we send a pony over to the States, even if be worth only $50, it is necessary for us to pay $30 duty, and if we send an animal over, worth $150 we have to pay 25 per cent. duty. I know these Bronchos are being bred to the stallions of the country by the farmers, and they expect to get something. when they will not get anything worthy of the name of a horse. This is a matter which should be brought to the attention of our Government, and we should try and have some law enacted whereby they will be prohibited from coming into the country at such a low duty.

The best market for the heavier harness horse is England and Scotland : they of course will also take a stepper and they look for action, just as in the States. But the best kind of horses for the United States market are the ones with high stepping qualities, such as Dog-cart, Victoria and Gig horses. The Americans will give fabulous sums for a good horse that has got the action, together with conformation and soundness.

Now I want to impress on you, gentlemen, that action sells all these harness horses. You have got to breed to get action, that is, to get big prices. In the past few years Canada has greatly increased, and our people are getting much more wealthy, and they have been able to compete very successfully with the people of the United States and are getting good prices for the horses if they have the action; but it is action every person must look to, not only in the United States, but in the home market. In England they want action, but I have found they will put up with a little less action in the London and Liverpool markets, if they have the bone, feet, and size.

The farmers of this country are too much inclined to sell their mares. In my experience I have bought and sold as many mares to go into the United States as I have geldings. My experience in this country is that mares are better at four years than geldings, and the buyers like to pick up the mares because they look a little better. In the old country they won't sell their mares, and the consequence is they keep their horses intact, and they are not all mixed up in breeds as in this country. If I go to a farmer, and he has a good mare and a gelding, the same age and quality, I can buy the mare just as cheap as the gelding, while the mare is worth from at least fifty to a hundred dollars more than the gelding to that farmer ; but this has been ever since I can recollect,

that you can buy a mare just as cheap as you can purchase a gelding, and it should not be. They should keep their mares. I know men who have kept them, and they have reaped the benefit thereby.

There is another market that ought to be cultivated, that is the French market. There are very few go to France from Canada, but there is a good market there, and they want something that steps high, and has a flashy appearance. They are not so particular as to solid colors, and are a little inclined to take something flashy, a horse with white legs or something like that.

I have nothing more to say except to congratulate the people of Canada upon the wonderful prices horses are bringing to-day, not only in the light horse classes, but heavy horses also, and it behooves you all to keep on increasing and breed the best stallions you can on the best mares. As I said keep your mares, and we will be a good horse country yet, because we have the land and climate and the breeders to raise the very best horses.

W. F. Kydd : I do not think the trotting horse or cob is a money-maker for the farmer of Ontario to-day.

S. B. Fuller : I am surprised to hear you say that, because in your own county of Norfolk and town of Simcoe the farmers are making more money by "Sensation" than by any other stallion.

W. F. Kydd : Is there a horse got by "Sensation" less than 15 hands in height. I had reference to a small cob under 15 hands.

S B. Fuller : I did not say that was the most profitable horse to breed. I have seen cobs by "Sensation" under 15 hands.

J. A. McGillivray : Where should we see that Yorkshire horse you speak of ?

S. B. Fuller : There should be some in the country. The Yorkshires are a more compact horse than a Cleveland Bay, and generally have more action. They are dark bays.

WINTER VENTILATION OF STABLES.

By Dr. J. Rutherford, Chief Veterinary Inspector, Ottawa.

It affords me a great deal of pleasure to be here among a number of horsemen, such as I see before me. I have been all my life in the society of horsemen and horses, and I confess I feel more at home under the present circumstances than under any other.

In referring to a few remarks made by Mr. Fuller, I wish to say we have had Yorkshire Coach horses in Canada from time to time, but I think they are all gone, and I am not sorry. We had a good many Cleveland Bay horses in Canada. I owned one myself, but he is dead, and I am not sorry. My opinion of the Yorkshires and Cleveland Bays as sires is : If you just want to get a colt on that is all, then they are all right ; but I have no use for these two classes of horses. If there are any Coach horses at the present day that I think are really fit to breed to, they are perhaps the French Coach horses. They are the most successful, but every one of the Coach horses are short pedigreed and cross-bred.

I would also agree with the remarks made by my friend Mr. Kydd.

There is no doubt that occasional Standardbred horses will leave fairly valuable animals ; but at the same time I do not think there has ever been a greater curse to the farmers of Canada than the Standardbred horse. I remember well when they came into Canada thirty years ago, and the Roadster horses that we had by Royal George and Clear Grit. These horses were fine horses 15-3 and 16 hands high and measured well below the knee, had good long strong quarters, magnificent joints, good shoulders and could step along very well too ; they were not in the two minute class, but some got down to 2.30 and 3 minutes and some 3.15, but they were excellent horses ; and I look

back with sorrow and shame to the day the first of the Standardbred horses came across the border, and from that day to this Canadian horses have gone down.

Mr. Kydd has just asked the question if it paid the farmer to breed a Cob or little Roadster. I do not think it does. I think, taking into consideration the number of miserable little animals we have in Canada to-day, that we should not breed any more. I would say, if we are going to breed at all, it will certainly pay to breed good little horses, and in that respect I agree with Mr. Fuller.

The only part I object to in Mr. Grisdale's address is where he mentions putting in those drugs. I wish to tell you the fewer drugs you give a horse the better, and with that one explanation I may say I heartily agree with Mr. Grisdale's remarks.

Now, as to winter ventilation. No stable can be healthy without a plentiful supply of fresh air, and in our severe climate the problem of efficient winter ventilation is one of extreme difficulty. A lengthy and most interesting essay could be written on this subject alone, and it is with regret that I feel myself on this occasion forced to treat it with more brevity than its importance merits.

Pure atmospheric air is composed of oxygen, nitrogen and carbonic acid, in about the following proportions: Nitrogen, 78.98; oxygen, 20.99; carbonic acid, .03, in each 100 parts of air. The nitrogen is simply of use to dilute the oxygen, being of itself incapable of sustaining life. Under ordinary conditions air otherwise pure contains in the gases mentioned moisture, traces of ammonia, floating particles of organic and inorganic matter, and more or less ozone, which last is only another form of oxygen. The ammonia contained in the air is not of itself hurtful, but when excessive indicates the presence of other impurities.

Of oxygen, according to Dr. Angus Smith, a pure air contains, as I have already stated, 20.99 per cent., and average air 20.96 per cent., while very bad air begins at 20.06 per cent. As oxygen is very rapidly consumed in the process of animal respiration, these figures have a striking significance.

Carbonic acid, when existing in the air to a greater extent than .03 per cent. or 04 per cent., is proof positive of a reduction in the amount of oxygen and an increase in the organic matter, and about 2 per cent. of carbonic acid. The exhalations of a healthy animal contains 19 per cent. instead of 21 per cent. of oxygen. It will thus be readily seen that the air in a stable full of animals, and without proper ventilation, soon becomes overloaded with carbonic acid. The sense of smell is a very good way of detecting the presence of carbonic acid. Taking .04 per cent. to start with, and allowing .02 per cent for ordinary inside air, we have .06 per cent. of carbonic acid. Now, according to Dr. Angus Smith, the existence of .08 per cent. is unpleasant to most of us, while the presence of one part per thousand in the air of a room renders it odious and unwholesome. Experiments have shown that in badly ventilated stables the air may contain as much as 17 parts per thousand of carbonic acid, with, of course, its accompanying proportion of organic matter. The effects of such an atmosphere on the animal economy are indescribable, especially when we consider the lack of oxygen and the large amount of organic matter thus shown to exist. Let us see what this organic matter consists of. That found in the air of stables comprises, according to Prof. Fred. Smith, of the Army Veterinary Department, cast off epithelium or scales from the mouth, air passages and skin, organic vapors from the lungs and skins, hairs, fungus-spores, acari, foeces in fine division, and vapors derived from decomposition of materials from the intestinal and urinary passages. Among these organic particles have been found many varieties of disease germs, such as those of anthrax, tuberculosis and glanders. When we consider the mucous membrane of the respiratory tract in the horse has an area of nearly 300 square feet, or over five or six times that of the outside skin, and that every portion of this surface is specially adapted for rapid absorption, we must admit, without fear of argument, the necessity of thorough ventilation if we desire to keep our stock in good health and condition. I could quote many most interesting facts and statistics showing the wonderful results achieved by the

introduction of effective ventilation in army stables and similar large establishments, but time will not allow me to do so, and I must pass over with another terse quotation from Dr. Parkes, who affirms that "disease and health are in the direct proportion of foul and pure air." The amount of air inspired by a horse varies greatly, but when standing still it is as a rule not much over 100 cubic feet per hour. In order, however, to afford him this quantity of reasonably pure air, in the stable of Prof. Fred. Smith, basing a most careful calculation on the quantity of carbonic acid exhaled, proves conclusively that it is necessary to furnish him with no less than 15,000 cubic feet per hour. This theory, which I may say I consider incontestably correct, has had a remarkable effect in dispelling the erroneous ideas of many architects in regard to the value of cubic air space, which, while certainly very important, can never take the place of a thorough system of ventilation. The greater the air space in a stable the less frequently need the air be changed, but this, important as it doubtless is, constitutes its only value. For instance, a horse having 500 cubic feet of air space allotted to him, must, in order to obtain his 15,000 cubic feet of fresh air, have it changed thirty times per hour, while one with an air space of 2,000 cubic feet will only require it changed 7 1-2 times. Again, while the first will require during the first hour 14,500 feet of fresh air and the second only 13,000, both will, during the second hour and each hour thereafter, require the introduction of an equal amount, viz., 15,000 feet. I have given this subject most careful thought, and I am satisfied that while in moderate weather we need have no great difficulty in reaching Prof. Smith's standard, we cannot hope to do so during the severe winters of this country. We must, however, do the best we can, and as I am fairly well satisfied with the results of my own experience in regard to ventilation in Manitoba, I propose to lay them before you, and to let you judge for yourselves. I may explain that, having experimented for years with all kinds of ventilators, I was, like almost every one else, very badly satisfied with any of them, and inclined to despair of ever finding a system in which the inlet would always be an inlet and the outlet always an outlet. I got my first start from a very intelligent English farmer, who was on a visit to the Province some eighteen years ago. He recommended placing U pipes under the wall behind the horses, and drain tiles through the wall over their heads, but he was forced to admit, on cross-examination, that when the wind blew in through the latter, his ventilation went on strike till it changed. I adopted the U pipe part of his plan, using, however, wooden boxes, but substituted adjustable side louvres at the top of a large shaft running to the roof for the drain tiles. These, however, were not a success, for the wind was sometimes in the opposite direction in the morning from that in which it had been at night, and on such occasions the stable smelt to heaven. I finally closed up the louvres altogether, putting in instead a galvanized iron pipe or chimney of considerable dimensions, furnished with an ordinary rain cap and a large damper manipulated by cords from the stable floor. When this damper is open, the foul air, being warm, rapidly rises, passes out through the chimney, and is steadily replaced by fresh air sucked in through the U pipes or boxes. By closing the damper the inrush of air through the lower pipes is at once checked, while a partial closure has a corresponding partial action on these inlets. In this way the whole system is under easy control, and can be adjusted to suit the weather or the number of animals in the stable. My stable is not ceiled but I think the system would work even better if the ceiling sloped slightly upward to the outlet shaft. There is no draft, as the fresh air is sucked, not driven, in, and, therefore, diffuses itself gently through the stable. This plan has stood a fair trial, having now been in operation upwards of twelve years. I may say that I would not exchange it for any other system of winter ventilation I have ever seen, and will not, therefore, occupy your time by describing other methods. By this plan a stable can be kept free from odor, and at a temperature during the coldest weather of from 35 to 40 degrees Fahrenheit, which is quite warm enough for healthy animals of any kind.

W. F. Kydd: Most fairs in Ontario give prizes for horses not registered; that is altogether wrong. I think if the directors of the several small fairs in Ontario gave no prizes for horses that were not registered they would be doing a grand work for the horse breeders of this country. I also think the farmers of Ontario should form committees in certain neighborhoods, and get, say, eighty mares promised at so much per foal—$12 to $15 per foal for a first-class stallion. In Scotland, where I was raised, a premium of about $5 was given to secure the horse, $5 at the time of service and about $10 when the mare proved with foal. For such money one of the best stallions at the Spring Fair in Glasgow was secured for that neighborhood, and I may say this plan worked to perfection, and gave the best of satisfaction, and I fully believe it would be in the interests of the horse breeders of the country to adopt some such plan as this.

A vote of thanks was tendered the speakers for their valuable addresses, and the meeting then adjourned.

PRIZE WINNERS AT THE SECOND SPRING STALLION SHOW, TORONTO, 1903.

Clydesdale Stallions, imported or tracing to imported mares, foaled previous to Jan. 1, 1900

1st, Gallant Robert (imp.) [3658] (10347) bay, white on face, white legs; foaled May 22, 1895; bred by H. A. Timms, Slogarie, New Galloway, Scotland; imported and exhibited by T. H. Hassard, Millbrook, Ont.; sire Prince Robert (7135); dam Jenny of Banks (Vol. 11, S.), by Top Gallant (1850).

2nd, Baron Primrose (imp.) [3979] (10980) brown, white spot on face and hind feet white; foaled May 20, 1899; bred by Jas. D. Fletcher, Rosehaugh, Scotland; imported and exhibited by Graham Bros., Claremont, Ont.; sire MacEachran (9792); dam Montrave Primula [4973] (11773), by Prince of Albion (6178).

3rd, Vanora's Pride (imp.) [3980] (11224) brown, white face, near fore leg and hind ankles white; foaled June 15, 1899; bred by George Alston, Loudoun Hill, Darvel, Scotland; imported and exhibited by O. Sorby, Guelph, Ont.; sire Baron's Pride (9122); dam Vanora (9348), by Darnley (222).

4th, Sir Reginald (imp.) [3561] (10930) black, or dark brown, stripe, little white on off fore foot, three white legs; foaled 1898; bred by R. C. Macfarlane, Greenburn, Doune, Scotland; imported and exhibited by J. B. Hogate, Sarnia, Ont.; sire Sir Everard [3066] (5353); dam Iris [4010] (13159), by Lord Erskine (1744).

5th, Lakeview Laddie [2477] bay, white on face, little white on near and spot on off fore foot; foaled May 11, 1896; bred by Jas. Rowan, Caesarea, Ont; exhibited by Henry Henders, Yelverton, Ont,; sire Sir Walter (imp.) [1131] (8772); dam Paisley Gem (imp.) [978], by Jordanshaw (3343).

6th, Border Duke (imp.) [3326] (10514) bay, face and hind legs white; foaled May 5, 1897; bred by Lord Polwarth, Mertoun House, St. Boswells, Scotland; imported and exhibited by John Miller & Sons, Brougham, Ont.; sire Fergusson [3504] (9526); dam Duchess of Robgill [3772] (11940), by Macgregor (1487).

7th, Royal Rights (imp.) [4238] (10635) bay, star and snip, near fore pastern and hind legs white; foaled July, 1896; bred by Jno. Kerr, Red Hall, Wigton, Cumberland, Eng.; imported in 1901 by Dalgety Bros., London, Ont.; exhibited by Jno. Gowland, Zimmerman, Ont.; sire Mains of Airies [2865] (10379); dam Orphan Girl [5385] (12525), by Royal George (8205).

8th, Cartsherrie Blend (imp.) [4096] (10351) bay, star, little white on off fetlocks; foaled June, 1895; bred by Jno. Kerr, Red Hall, Cumberland, England; imported and exhibited by Campbell Bros., Walkers, Ont.; sire Darnley Again (9182); dam Blossom [5019] (4363), by Lord Fitzlyon (1747).

9th, King Dick (imp.) [4146] (10212) bay, face and hind legs white; foaled May, 1895; bred by Sir James Duke, Laughton, England; imported and exhibited by J. Hogate, Sarnia, Ont.; sire Black Prince of Laughton [4147] (10164); dam Laughton Queen [5171] (11310), by St. Lawrence (3220).

Clydesdale Stallions, imported or tracing to imported mares, foaled in 1900

1st, Gallant Chattan (imp.) [4223] (Vol. 26, S.) brown, grey hairs through body, stripe, near fore and both hind legs white; foaled July 4th, 1900; bred by Jno. Samson, Drumcross, Scotland; imported and exhibited by J. B. Hogate, Sarnia, Ont.; sire Clan Chattan [4224] (10527); dam Polly of Drumcross [5363] (13595), by Barrister [4225] (10312).

2nd, Royal Kerr (imp.) [3856] (11913) bay, stripe, fore ankles and near hind leg white; foaled 1900; bred by Wm. Bone, Shalloch Park, Girvan, Scotland; imported in 1903 by Dalgety Bros., London, Ont; exhibited by J. M. Gardhouse, Weston, Ont.; sire Royal Champion [3521] (8956); dam Jessie Maben [4466] (13365), by Prince Alexander [2898] (8899).

3rd, Marlborough (imp.) [4267] (11428) brown, white stripe on face, near fore and hind foot white; foaled May 1, 1900; bred by Jas. Rennie, Milltown, Fintray, Aberdeenshire, Scotland; imported and exhibited by Geo. Isaac, Cobourg, Ont.; sire Prince Stephen (9363); dam Miss Garnet (14774), by Garnet Cross (1662).

4th, Nation's Pride (imp.) [4003] (11440) black, ratch, one fore and both hind legs white; foaled 1900; bred by G. Fraser, Kilnhill, Laurencekirk, Scotland; imported and exhibited by J. B. Hogate, Sarnia, Ont.; sire Prince of Airies [3651] (10103); dam Jess of Kilnhill [5349] (13803), by Pride of the Clans (4632).

5th, Royal Knockdon (imp.) [4216] (11501) brown, off hind and one fore leg white; foaled May, 1900; bred by A. McGown, Blairdardie, Bearsden, Scotland; imported in 1902 by R. D. Dundas, Springville, Ont.; exhibited by Alex. McGregor, Uxbridge, Ont.; sire Mains of Airies [2865] (10379); dam Bella, alias Ida Cowan [5346], by Lord Erskine (1744).

6th, Wallace Scott (imp.) [4289] (11982) bay, white stripe on face, off fore foot white, near fore foot black, hind feet white; foaled June 2, 1900; bred by Jas. A. W. Wallace, Claycrop, Kirkinner, Scotland; imported and exhibited by T. H. Hassard, Millbrook, Ont.; sire Earl of Smithfield (10737); dam Belle of Claycrop (12031), by Harold (2854).

Clydesdale Stallions, imported or tracing to imported mares, foaled in 1902

1st, Yester (imp.) [4277] (12409) brown, white stripe on face, off hind leg and near hind pastern white; foaled April 10, 1901; bred by Wm. Nicholson, Bornbie, Kirkcudbright, Scotland; imported and exhibited by Graham Bros., Claremont, Ont.; sire Baron's Pride (9122); dam Kate of Bornbie (13220), by Macgregor (1487).

2nd, Cairngaan (imp.) [4280] (12073) brown, white hind ankles and stripe on face; foaled 1901; bred by Peter McCosh, Cairngaan, Stranraer, Scotland; imported and exhibited by Graham Bros., Claremont, Ont.; sire Lord Douglas (11093); dam Mary Bruce, by The Observer (8338).

3rd, Gallant Barrie (imp.) [4288] (11714) bay, stripe on face, hind feet white; foaled May 24, 1901; bred by Jas. Barrie, Balmedie Home Farm, Aberdeen, Scotland; imported and exhibited by T. H. Hassard, Millbrook, Ont.; sire Prince Thomas (10262); dam Balmedie Sweetheart (12831), by Balmedie Prince (7454).

4th, Scottish Baron (imp.) [4245] (11928) black, face and legs white; foaled June 9, 1901; bred by Jno. Armstrong, Hayborough Farm, Maryport, Cumberland, England; imported by Jno. A. Turner, Calgary, Alta.; exhibited by O. Sorby, Guelph, Ont.; sire Baron's Pride [3067] (9122); dam Becky Sharpe (12949), by Dictator (7643).

5th, Bounding Tom (imp.) [4228] (Vol. 26, S.) black, face and three legs white; foaled May, 1901; bred by J. C. Wood, Wolfclyde, Biggar, Lanarkshire, Scotland; imported and exhibited by J. B. Hogate, Sarnia, Ont.; sire Sir Thomas [4029] (9681); dam Blossom [5366], by Prince Romeo [3536] (8144).

6th, Roslin (imp.) [4246] (11886) bay, white face, white on off fore leg, hind legs white; foaled June 20, 1901; bred by Wm. Hood, Chapelton of Borgue, Kirkcudbright, Scotland; imported by Jno. A. Turner, Calgary, Alta.; exhibited by O. Sorby, Guelph, Ont.; sire Acme (10485); dam Rosalind (10681), by Macpherson (3825).

7th, Bogside (imp.) [4291] (11634) brown, white stripe on face, hind legs white; foaled June 12, 1901; bred by Geo. McGill, Bogside, Langbank, Renfrewshire, Scotland; imported and exhibited by T. H. Hassard, Millbrook, Ont.; sire Clan Chattan (10527); dam Bell, by Sir Everard (5353).

Clydesdale Stallions, imported or tracing to imported mares, foaled in 19 2

1st, Baron William (imp.) [3988] (Vol. 26, S.) bay, face and hind legs white, some white on fore legs; foaled May, 1902; bred by Jas. Craig, Auchengoll, Castle Douglas, Scotland; imported and exhibited by Graham Bros., Claremont, Ont.; sire Baron's Pride [3067] (9122); dam Maud of Auchengoll [4977] (13753), by Edinburgen [3718] (5743).

2nd, Montrave Senator [4163] bay, stripe, hind legs white; foaled April, 1902; bred and exhibited by Levi S. Bowles, Springville, Ont.; sire Montrave Matchless (imp.) [3434] (9959); dam Belle 2nd [5201], by General Arthur (imp.) [1754] (6780).

Clydesdale Mares, impor'ed or tracing to imported mares, 3 years old and over

1st, Her Pretty Sel [5394] 8976 bay, ratch on face, right fore pastern and outside of left fore pastern and hind legs white; foaled May 14, 1898; bred by Robt. Holloway, Alexis, Ill.; exhibited by Robt. Davies, Toronto; sire Cedric [2262] 929 (1087); dam Her Ain Sel 3412, by Simple Jamie 1583.

2nd, Nelly Lynedoch [2603] light bay, stripe in face, front ankle and nigh hind legs white; foaled February 18, 1899; bred and exhibited by Robt. Davies, Toronto; sire King's Own [2172]; dam Nelly (imp.) [1323], by Lord Lynedoch (4530).

3rd, Lady Richardson (imp.); exhibited by T. H. Hassard, Millbrook, Ont.

Clydesdale Mares, imported or tracing to imported mares, under 3 years

1st, Royal Princess (imp.) [5209] (Vol. 26, S.) brown, stripe, three white legs; foaled May, 1901; bred by R. Renwick, Buchley, Bishopbridge, Lanarkshire, Scotland; imported by T. H. Hassard, V.S., Millbrook, Ont.; exhibited by Andrew Aitchison, Guelph, Ont.; sire Royal Carrick [3533] (20270); dam Princess Laurence [5210] (13249), by Prince Laurence [2661].

2nd, Royal Belle (imp.) [5207] (Vol. 26, S.) brown, stripe, hind legs white; foaled May, 1901; bred by R. Renwick, Buchley, Bishopbridge, Lancashire, Scotland; imported by L. H. Hassard, V.S., Millbrook, Ont.; exhibited by Andrew Aitchison, Guelph, Ont.; sire Royal Carrick [3533] (10270); dam Bell of Buchley [5208] (10128) by Callendar (4901).

3rd, Belle Troon [3550] bay, blaze, white legs; foaled May 2, 1902; bred and exhibited by Robt. Davies, Toronto; sire Lyon Macgregor (imp.) [2308] (10376); dam Queen Bell [2193], by Queen's Own (imp.) [1708] (7176).

4th, Helen Macqueen [3520] bay, stripe, hind feet white; foaled May 6, 1902; bred and exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire Macqueen (imp.) [462] (5200); dam Royal Princess [2345], by The Royal Standard (imp.) [2220] (10014).

5th, Loretta [3549] bay, blaze, white legs; foaled June 28, 1902; bred and exhibited by Robt. Davies, Toronto; sire Lyon Macgregor (imp.) [2308] (10376); dam Truth [2604], by Border Reiver (imp.) [2307] (10171).

Canadian Bred Clydesdale or Shire Stallions, foaled in 1901

1st, Prince of Wexford [4242] bay, stripe, four white feet; foaled May 4, 1901; bred and exhibited by William E. Gooderham, Wexford, Ont.; sire Prince of Blantyre [2239]; dam May Perth [3362], by Pride of Perth (imp.) [282] (2336).

2nd, Bonnie Macqueen [4292] bay, stripe in face, near fore foot and hind legs white; foaled June 24th, 1901; bred by Jas. MacFarlane, Claremont, Ont.; exhibited by Graham Bros., Claremont, Ont.; sire Macqueen (imp.) [462] 3513 (5200); dam Minnie of Springbank Farm [5436], by Queen's Own (imp.) [1708] 7266 (7176).

3rd, Novar [3459] bay, stripe, hind feet white; foaled June 10, 1901; bred by Gilbert Matthewson, Maple, Ont.; exhibited by Davis & Graham, Schomberg, Ont.; sire Uamvar (imp.) [2129] (9457); dam Dolly Grange [3687], by Grange (imp.) [364] (3671).

4th, Brookedale [3232] bright bay, white face, near fore and both hind feet white; foaled April 16, 1901; bred by L. L. Hartman, Aurora, Ont.; exhibited by Davis & Graham, Schomberg, Ont.; sire Vanguard (imp.) [157] (4092); dam Queen of Brookedale [3433], by Defiance (imp.) [355] (3558).

5th, Macqueen's Hero [4166] bay, star, hind feet white; foaled May, 1901; bred by Jno. Milroy & Sons, Cedar Grove, Ont.; exhibited by Graham Bros., Claremont, Ont.; sire Macqueen (imp.) [462] 3532 (5200); dam Maple Shade Darling [5214], by Mount Annan (imp.) [471] (3851).

6th, Lieutenant Junior [3442] black, stripe, nigh fore and hind feet white; foaled May, 1901; bred by Jos. Norton, Goodwood, Ont.; exhibited by W. R. Stewart, 665 Queen St. East, Toronto; sire Lord Lieutenant (imp.) [975] (4529); dam Goodwood May [3661], by Prince James (imp.) [941] 7445 (7129).

Canadian Bred Clydesdale or Shire Stallions, foaled in 1902

1st, Cairnton's Pride [3968] brown, stripe, front feet and hind legs white; foaled May, 1902; bred and exhibited by Jno. Vipond, Brooklin, Ont.; sire Royal Cairnton (imp.) [4018] (10875); dam Nell of Brooklin [4769], by Lawers' Baron Gordon (imp.) [1005] 4594 (5136).

2nd, Macqueen's Best [3323] bay, stripe, four white feet; foaled April 29, 1902; bred and exhibited by J. W. Cowie, Markham, Ont.; sire Macqueen (imp.) [462] 3513 (5200); dam Fanny Redmond [2530] 7748, by Brown James (imp.) [731] 7044 (5595).

3rd, Lion Macqueen [3305] bay, stripe, one fore and both hind legs white; foaled May 15, 1902; bred and exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire Macqueen (imp.) [462] (5200); dam Royal Clara [2855], by The Royal Standard (imp.) [2220] (10014).

4th, Matchless [3457] brown, star, hind feet white; foaled June 8, 1902; bred and exhibited by D. Carstairs, Bomanton, Ont.; sire Montrave Matchless (imp.) [3434] (9959); dam Mabel [2965] 8069, by Abbot of Rerwick (imp.) [575] (5474).

5th, Cairnton's Best [4243] bay, stripe, one fore foot and both hind feet white; foaled July 16th, 1902; bred by John Bright, Myrtle, Ont.; exhibited by T. W. Ross, Myrtle Station, Ont.; sire Royal Cairnton (imp.) [4019] (10875); dam Nellie Bly [3011], by Blacksmith (imp.) [1042] (5551).

6th, Macqueen's Pride [4203] brown, ratch, near fore and both hind legs white; foaled June 20, 1902; bred by Wm. Ness, Dollar, Ont.; exhibited by Harry Slater, Orillia, Ont.; sire Young Macqueen [2290] 8033; dam Vick [5330], by Dumbarton Jock (imp.) [730] (5728).

7th, Foreman [3639] dark bay, stripe, off hind foot white; foaled May 2, 1902; bred and exhibited by Jas. W. White, Brooklin, Ont.; sire Lord Lynedoch (imp.) [3004] 4113 (4530); dam Nell Kirtle [3947] by Prince of Kirtle (imp.) [711] (6191).

Canadian Bred Clydesdale or Shire Mares, over 3 years old

1st, Daisy Belle [2596] chestnut, stripe in face, hind heels white; foaled May 7, 1894; bred and exhibited by Alex. Doherty, Ellesmere, Ont.; sire Bruce (imp.) [1595] (8496); dam May of Ellesmere [307], by Victor 2nd (imp.) [158] (1338).

2nd, Sweetheart [5393] chestnut, face and four feet white; foaled May 7, 1900; bred and exhibited by Alex. Doherty, Ellesmere, Ont.; sire Prince of Blantyre [2239]; dam Daisy Belle [2596], by Bruce (imp.) [1595] (8496).

3rd, Arabella Craichmore [4754] brown, stripe, four white legs; foaled June, 1900; bred by A. McLean, Manilla, Ont.; exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire Craichmore [2391]; dam Balgownie Lass, by Balgownie (imp.) [2033] (9116).

Canadian Bred Clydesdale or Shire Mares, under 3 years old

1st, Daisy Macqueen [4755] bay, stripe, white legs; foaled June 21, 1901; bred by J. McFarlane, Claremont, Ont.; exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire Macqueen (imp.) [462]; dam Blossom of Springbank Farm [800], by Manfred (imp.) [68] (1758).

2nd, Lady Brunstane [5383] brown, stripe, hind feet white; foaled April 28, 1903; bred by James Smillie, Inwood, Ont.; exhibited by J. M. Gardhouse, Weston, Ont.; sire Brunstane Boy (imp.) [3161] (10708); dam Nellie, by MacKinnon (imp.) [2699] (5196).

3rd, May Macqueen [4753] light bay, stripe, hind legs white; foaled May, 1902; bred by R. Whitson, Atha, Ont.; exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire Macqueen (imp.) [462]; dam Rose of Atha [1543], by Lord Salisbury (imp.) [246] 428 (1477).

4th, Lucy Lynedoch [4372] bay, stripe, one white leg; foaled June 5th, 1902; bred by A. Dawson, Cannington, Ont.; exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire Lord Lynedoch (imp.) [3004] 4113 (4530); dam Bonnie Bess [3256], by Erskine's Pride (imp.) [1332] (4989).

5th, Rhona [5170] bay, stripe, hind feet white; foaled May 12, 1901; bred by E. R. Ross, Derryville, Ont.; exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire John Henry [2778]; dam Maud, by Haddo Chief (imp.) [1609] (7798).

Shire Stallions, foaled previous to Jan. 1, 1901

1st, Bank Statesman (imp.) [352] bay, stripe, hind legs white; foaled 1900; bred by B. Thomas, Westbury, Shrewsbury, England; imported and exhibited by Morris & Wellington, Fonthill, Ont.; sire Carltonie (13946); dam Brown, by Potentate (12086).

2nd, Mars (imp.) [275] (17103) bay, white spot on face, white hind legs; foaled 1897; bred by W. C. Salt, Wellington, Burton-on-Trent, England; imported and exhibited by Morris & Wellington, Fonthill, Ont.; sire Vulcan (4145); dam Galatea (10048), by Royal Albert (1885).

3rd, Gallant Prince (imp.) [389] (18750) bay, white legs; foaled 1898; bred by late Wm. Winson, Longcourse, Chesterfield, England; imported and exhibited by Geo. Isaac, Cobourg, Ont.; sire Harold Conqueror (15617); dam Longcourse Mary (10365), by Black Prince (2989).

Shire Stallions, foaled in 1901

1st, Sand Boy (imp.) [386] (Vol. 25, E.) bay, white on face, on one fore and both hind legs; foaled 1901; bred by Jno. Harrison, Sand Villa, Cockerham, Garstang, England; imported in 1903 by Bawden & MacDonell, Exeter, Ont.; exhibited by J. M. Gardhouse, Weston, Ont.; sire Shore Side (19125); dam Kate (Vol. 25, E.), by Sir James 2nd (6393).

2nd, Nateby Pioneer (imp.) [384] (20753) chestnut, star, four white feet; foaled 1901; bred by T. Eccles, Grimsargle, Preston, England; imported and exhibited by J. B. Hogate, Sarnia, Ont.; sire Gunthorpe Advance (13136); dam Bessie (17761), by St. Crispin (12221).

3rd, Barrow Albert (imp.) [388] (20232) brown, face and legs white; foaled 1901; bred by Jas. Eadie, Barrow Hall, Derby, England; imported and exhibited by Morris & Wellington, Fonthill, Ont.; sire Barrow Sir James (17142); dam Lockinge Mistletoe (29264), by Lockinge Albert (15695).

4th, Nateby Twilight (imp.) [385] (Vol. 25, E.) bay, stripe, one hind leg white; foaled 1901; bred by J. & T. Hull, Preesall, Paulton-le-Fylde, England; imported and exhibited by J. B. Hogate Sarnia, Ont.; sire Gunthorpe Advance (13136); dam Stalmine Chance (13513), by King David 3rd (7490).

5th, Coleshill Royal Albert (imp.) [383] (20367) black, white face, four white legs; foaled in 1901; bred by the late Walter Done, Cawarden Springs, Rugeley, England; imported by S. G. Mackaness, Abingdon Lodge, Northampton, England; exhibited by John Gardhouse & Sons, Highfield, Ont.; sire Moorland Paxton (16259); dam Stenson Duchess (7114), by Royal Albert (1885).

6th, Sparkler (imp.) [387] (Vol. 25, E.) bay, star, hind feet white; foaled 1901; bred by Thos. Nott, Buckton Park, Leintwardine, England; imported in 1903 by S. G. Mackaness, Abingdon Lodge, Northampton, England; exhibited by J. M. Gardhouse, Weston, Ont.; sire Nyn Hitchin Duke (14782); dam Spark (26917), by Lincoln's Reserve (13260).

7th, Coronation (imp.) [354] black, white range, near hind foot white; foaled 1901; bred by J. S. Cock, Spalding, England; imported and exhibited by Morris & Wellington, Fonthill, Ont.; sire Lockinge Harold (16779); dam Blossom (30909), by Bar None William (10963).

Shire Mares, 3 years old and over

1st, Laura [112] bay, stripe on face, near front and both hind legs with white stockings; foaled May 1, 1896; bred by Morris, Stone & Wellington, Fonthill, Ont.; exhibited by Jno. Gardhouse & Sons, Highfield, Ont.; sire Pride of Hatfield (imp.) [256] (13103); dam Daisy [82], by Chieftain 2nd (imp.) [194] (5723).

2nd, Louise [172] bay, near hind foot white; foaled 1897; bred by Morris & Wellington, Fonthill, Ont.; exhibited by J. M. Gardhouse, Weston, Ont.; sire Pride of Hatfield (imp.) [256] (13103); dam Lucy [128], by Chieftain 2nd [194] (5427).

Shire Mares, under 3 years

1st, Lady Luetta [192] bay, star, hind ankles white; foaled May 6, 1903; bred by Morris & Wellington, Fonthill, Ont.; exhibited by J. M. Gardhouse, Weston, Ont.; sire Mars (imp.) [275] (17103); dam Louise [172], by Pride of Hatfield (imp.) [256] (13103).

Stallion Colts, either Clydesdales, Canadian bred Clydesdales or Shires, foaled subsequent to and on January 1st, 1903

1st, Vigorous Macqueen [4294] bay, stripe, near fore and both hind feet white; foaled May 3, 1903; bred by Geo. Cooper, Claremont, Ont.; exhibited by Graham Bros., Claremont, Ont.; sire Macqueen (imp.) [462] (5200); dam Forest Queen [3724], by Queen's Own (imp.) [1708] (7176).

2nd, Prince Keir [4269] brown, stripe, front feet and near hind feet white; foaled June 15th, 1903; bred and exhibited by Jno. Vipond, Brooklin, Ont.; sire Royal Keir (imp.) [4208] (10881); dam Nell of Brooklin [4769], by Lawers' Baron Gordon (imp.) [1005] 4594 (5136).

3rd, Rob Roy Macgregor [4252] bay, face and hind legs white; foaled May 25, 1903; bred and exhibited by Wm. Doherty, Ellesmere, Ont.; sire Lyon MacGregor (imp.) [2308] (10376); dam Rosy Nell [448], by Lochiel (imp.) [13].

4th, Maccorrie [3964] bay, stripe, near hind leg white; foaled June 1903; bred and exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire Wayward Boy [2773]; dam Moss Rose [1943], by Blucher (imp.) [1264] (1960).

CHAMPIONSHIPS

Clydesdale Stallion, imported or Canadian Bred, any age

1st, Gallant Robert (imp.) [3658] (10347); exhibitor, T. H. Hassard, Millbrook.

Clydesdale Mare, imported or Canadian bred, any age

1st, Her Pretty Sel [5394] 8976; exhibitor, Robt. Davies, Toronto.

Shire Stallion, any age

1st, Sand Boy (imp.) [386]; exhibitor, J. M. Gardhouse, Weston.

Shire Mare, any age

1st, Laura [112]; exhibitor, Jno. Gardhouse & Sons, Highfield.

Geldings 3 years old and over, to be sired by either a registered Clydesdale or Shire Stallion, who must be named. Given by the Dominion Government.

1st, Bobbie Burns, chestnut; foaled in 1901; exhibited by Alex. Doherty, Ellesmere, Ont.; sire Macarlie [2464] 8782.

2nd, Bob, bay with white face; exhibited by J. W. Cowie, Markham, Ont.; sire Lawers' Baron Gordon (imp.) [1005] (5136).

3rd, Chief, dark bay, stripe in face; foaled 1901; exhibited by J. A. Starr, Pine Orchard, Ont.; sire Haddo Chief (imp.) [1609] (7798).

4th, Jack, black; foaled in 1900; exhibited by Jno. W. Cowie, Markham, Ont.; sire Lord Lieutenant (imp.) [975] (4529).

5th, Sandy, bay; exhibited by Willis Bros., Pine Grove, Ont.; sire Young Macqueen [2290].

6th, Charley Mac (Shire), dark brown, star in forehead, hind foot white; foaled 1901; exhibited by Willis Bros., Pine Grove, Ont.; sire Fitzsimmons [270].

Tenth Canadian Horse Show.

"No outside attractions" was the order of the day at the Tenth Canadian Horse Show, which was held at the Armouries, Toronto, April 27, 28, 29 and 30, under the auspices of the Canadian Horse Breeders' Association and the Toronto Hunt Club. It was a horse show pure and simple, and yet the results prove that the horse has such a hold on the affections of the public that nothing else is needed to compel their attendance to watch the stylish action of the high stepper, the speedy gait of the pacer or trotter, or the ease with which so many of the high jumpers cleared the bars, even when raised to six feet and more. This was the more remarkable this year because the weather throughout nearly all the show was not of an order to encourage people to turn out of doors to go any distance, being cool and wet. Then, too, the disastrous fire, which swept out of existence such a large portion of the business centre of Toronto just a few days before the show, might have reasonably been expected to have considerably injured the gate receipts. Notwithstanding these drawbacks, the results were highly satisfactory. As in former years, Saturday morning, which is children's day, found the building well filled with children of all ages, who applauded liberally when their favorites won.

An improvement in the prize list was a large increase in classes, whereby some of the classes, which in former years were so well filled as to be unwieldy for the judges to handle, were subdivided by making alterations in the conditions as to height, etc. Then there were several classes for amateurs only, and some for dealers only. The former will no doubt be more largely filled another year. The show was opened by Hon. Mortimer Clark, Lieutenant-Governor of Ontario, in a neat speech, and His Excellency, Lord Minto, arrived on Friday and stayed till Saturday night. As for the past three years, he contributed a cup and money as a prize for the best four-year-old horse bred in Canada suitable for cavalry purposes.

As regards the breeding classes, thoroughbred stallions were about the average, as were coach and roadster stallions. Hackneys, except in the aged stallion class, were not numerous, some of those entered being unable to be present, H. N. Crossley's string being were very good, and the competition was keen. The Wm. Hendrie Co., Hamilton, showed a weather bound at Rosseau. Heavy draught geldings and mares, shown singly and in pairs, heavy draught four-in-hand. The harness classes were well and evenly filled, as a rule, and the quality was never better. The jumping seen at this show has never been excelled here, it not being limited to one or two, but generally good all through. A feature was the special high jump on Saturday night, when so many horses distinguished themselves again and again as the bars were raised, that Sunday morning would have been broken into, had not the committee, after consultation with the competitors, arranged for Pepper's Myopia and Crow & Murray's Thistledown to be tied for first place, and given third to Pepper's Senator and fourth to Crow & Murray's Timber Topper, which was the order the judges had them scored when the jump was at 6 feet 3 inches.

Roadsters and pacers were numerous and good, especially the former. The pony classes had been largely increased in number, thanks to the good work of the Canadian Pony Society, and were in most cases most creditably filled, some ponies of excellent conformation being entered. The jumping of the ponies was far above the average of previous years.

PRIZE LIST.

THOROUGHBREDS.

Judge.—A. R. Pringle, Cobourg.

Stallions foaled previous to Jan. 1st, 1901.

1st. Martinmas, chestnut, 12.2, foaled in 1896. Exhibitor, Wm. Hendrie, Hamilton. Sire Candlemas (imp.); dam, Biggonet.
2nd. Central Trust, chestnut, 16, foaled in 1905. Exhibitor, Jos. Hurley, Guelph. Sire, Medler (imp.); dam, Moneybox.
3rd. Tragedian, chestnut, 15.3, aged. Exhibitor, B. F. Gregory, Toronto. Sire, Egmont; dam, Vera.

Stallions foaled subsequent to and on Jan. 1st, 1901.

1st. Wild Monarch, chestnut, 15.3½, foaled in 1901. Exhibitor, E. B. Clancy, Toronto. Sire, Wickham; dam, Banoletta.

Stallions qualified to improve the breed of Saddle Horses and Hunters.

1st. Dalmoor, bay, 16.1, foaled in 1894. Exhibitor, E. Whyte, Aldershot. Sire, Louis XIII.; dam, Lady Dalmeny.
2nd. Trinity, chestnut, 16, aged. Exhibitor, W. A. Lawrence, Milton. Sire, Forester; dam,, British Beauty (imp.)
3rd. Credential (imp.) (223), chestnut, 16, foaled in 1895. Exhibitor, R. B. Harris, Hamilton. Sire, All's Blue; dam, Alberta Victoria.

Thoroughbred Stallion, any age. Gold Medal, presented by Toronto Industrial Exhibition Association.

1st. Dalmoor. Exhibitor, E. Whyte, Aldershot.

CARRIAGE OR COACH STALLIONS.

Judges.—Wm. West, Charlotte, Vt.; J. F. Quin, V.S., Brampton.

Stallions foaled previous to Jan. 1st, 1901.

1st. General Buller, bay, 16.1, foaled in 1899. Exhibitor, J. L. Reed, Derrywest. Sire, Wiley Buckles; dam, Hyacintha.
2nd. Beadlam Prior 2nd, 1573, bay, 16.1, foaled in 1900. Exhibitor, T. H. Hassard, Millbrook. Sire, Prince George (235); dam, Girl of the Period (353).
3rd. Reformer (bay) 16, foaled in 1900. Exhibitor, A. G. H. Luxton, Milton. Sire, Terrington Boy; dam, by Clear Grit.

Stallions foaled subsequent to and on Jan. 1st, 1901.

1st. Wildbrino Ring, bay, foaled in 1891. Exhibitor, J. L. Clark, Norval. Sire, Wildbrino.
2nd. Swallow Jr., bay, foaled in 1901. Exhibitor, A. G. H. Luxton, Milton. Sire, Swallow; dam, by Goldleaf.

Carriage or Coach Stallion, any age. Given by Toronto Electoral District Society.

1st. General Buller. Exhibitor, J. L. Reid, Derrywest.

STANDARD BRED ROADSTER STALLIONS.

Judges.—J. Sinclair, V.S., Cannington ; Robt. Graham, Claremont.

Stallions foaled previous to Jan. 1st, 1901.

1st. Oro Wilkes, 30347 black, 15.1½, foaled in 1891. Exhibitor, Miss K. L. Wilkes, Galt. Sire, Sable Wilkes, 8100 ; dam, Ellen Mayhew.
2nd. Prodigal Son, brown, 16, foaled in 1899. Exhibitors, Crow & Murray, Toronto. Sire, Prodigal ; dam, Eoline.
3rd. D. L. C., bay, 16.1, foaled in 1891. Exhibitor, Simon James, Hamilton. Sire, Accoli (26640) ; dam, Red Wing.

Stallions foaled subsequent to and on Jan. 1st, 1901.

1st. Rex W., 37551, chestnut, foaled in 1901. Exhibitor, Miss K. L. Wilkes, Galt. Sire Dashwood ; dam, Sphinxena.
2nd. Clifford N., 36305, dark bay, 15.1½, foaled in 1901. Exhibitors, Grosch Bros., Milverton. Sire, Furioso, 18421 ; dam, Clarion Belle.

HACKNEYS.

Judges.—Wm. West, Charlotte, Vt. ; J. F. Quinn, V.S., Brampton.

Stallions foaled previous to Jan. 1st, 1901.

1st. Saxon —97—, dark brown, star, off coronet and both hind heels white ; foaled May 2, 1899. Bred by Rawlings Bros., Calgary, Alta. Exhibited by Graham Bros., Claremont. Sire, Robin Adair 2nd (imp.) —63— (3907) ; dam, —64— (3798) Fimber Pride.
2nd. Hillhurst Sensation —58—, bay, little white on off hind heel ; foaled April 30, 1895. Bred by Hon. M. H. Cochrane, Hillhurst, Que. Exhibited by A. Yeager, Simcoe. Sire, Hayton Shales (imp.) —22— (4806) ; dam, —16— (4371) Miss Baker (imp.)
3rd. Rosseau Performer (imp.) —34— (5391), chestnut roan, foaled in 1893. Bred by Jno. T. Browne, Althorpe, Doncaster, Eng. Exhibited by Jos. Thomson, Orillia. Sire, Enthorpe Performer (2973) ; dam, (111) Fanny.

Stallions foaled subsequent to and on Jan. 1st, 1901.

1st. Toscar —125—, bay, foaled June 30, 1901 Bred by R. Beith, M.P., Bowmanville. Exhibited by Julio Pauelo, Argentine Republic, South America. Sire, Lord Rosebery (imp.) —9— 402 (1307) ; dam, —105 — Lady Brookfield.
2nd. Percy Performer (imp.) —203— (8260), chestnut, white mark down face, white legs ; foaled in 1901. Bred by David Beal, Wharram, Percy, Yorks., Eng. Exhibited by Thos. Irving, Winchester. Sire, Rosinous (6534) ; dam, (5508) Lady Bird.

Mares foaled subsequent to and on Jan. 1st, 1901.

1st. —212— Woodlands Queen, brown, star, little white on off hind heel ; foaled May 17, 1901. Bred by Dr. Gollop, Milton. Exhibited by A. G. H. Luxton, agent, Milton. Sire, Woodlands Performer —68— ; dam, [—192— Kate].

High Stepper, Stallion in Harness to suitable vehicle. To be sired by a Registered Hackney Stallion.

1st. Hillhurst Sensation —58—. Exhibitor, A. Yeager, Simcoe.
2nd. Rosseau Performer (imp.) —34— (5391). Exhibitor, Jos. Thomson, V.S., Orillia.

High Stepper, Mare or Gelding, not under 15 hands. To be shown to a suitable vehicle and be sired by a Registered Hackney Stallion.

1st. Miss Canada, gr.m., 15.1, 3 yrs. Exhibitor, A. Yeager, Simcoe. Sire, Hillhurst Sensation —58—.
2nd. Derby King, b.g., 15.2½, 4 yrs. Exhibitor, A. Yeager, Simcoe. Sire, Hillhurst Sensation —58—.

Hackney Stallion, any age, foaled in Canada. Given by the Canadian Hackney Horse Society.

1st. Saxon —97—. Exhibitors, Graham Bros., Claremont.

Hackney Mare, any age, foaled in Canada. Given by the Canadian Hackney Horse Society.

1st. —212— Woodlands Queen. Exhibitor, A. G. H. Luxton, agent, Milton.

Hackney Stallion or Entire Colt, by an imported sire and out of an imported dam, both registered in the English Hackney Stud Book. Given by the English Hackney Horse Society.

1st. Saxon —97—. Exhibitors, Graham Bros., Claremont.

Pair of Draught Mares or Geldings, any breed whatever, shown in harness.

1st. Her Pretty Sel [5394] 8976, bay, 6 yrs ; Nelly Lynedock [2603] light bay, 5 yrs. Exhibitor, Robert Davies, Toronto.
2nd. Princess May [5687] b. m., 5 yrs ; Norval Queen [5689] b. m., 4 yrs. Exhibitor, J. L. Clark, Norval.
3rd. Louis, br. g., 16, 5 yrs ; Prince, br. g., 16, 6 yrs. Exhibitor, Joseph Russell, Toronto.

Single Draught Mare or Gelding, any breed whatever, shown to a cart or waggon.

1st. Bobby Burns, ch. g., 3 yrs. Exhibitor, Alex. Doherty, Ellesmere.
2nd. Duke, ch. g., 16.2, 5 yrs. Exhibitors, Dominion Transport Co., Toronto.
3rd. Montrave Nell [5380] bay, 5 yrs. Exhibitor, W. D. Luistead, Queensville.

Pair of Draught Mares or Geldings, sired by a registered Clydesdale Stallion.

1st. Her Pretty Sel [5394] 8976, bay, ratch on face, right fore pastern and outside of left fore pastern and hind legs white, foaled May 14, 1898. Bred by Robt. Holloway, Alexis, Ill. Sire, Cedric [2262] 929 (1087) ; dam, Her Ain Sel [3412] ; Nelly Lynedoch [2603] light bay, stripe in face, front ankle and nigh high legs white, foaled Feb. 18, 1899. Bred by exhibitor. Sire, King's Own [2172] ; dam, Nelly (imp.) [1323]. Exhibitor, Robt. Davies, Toronto.
2nd. Princess May [5687] bay, stripe near fore and both hind legs white, foaled May 29, 1899. Bred by Wm. Russell, Norval. Sire, Top Gallant [2211] ; dam, Polly [5588] ; Norva, Queen [5689] bay, stripe, white feet, foaled June 2, 1900. Bred by Wm. Russell. Norval. Sire, Top Gallant [2211] ; dam, Polly [5588]. Exhibitor, J. L. Clark, Norvall

Heavy Draught Team of four Horses, to be shown in harness before a suitable waggon.

1st. Blueskin, blk. g., 18, 3 yrs ; Blue Ruin, br. g., 18, 3 yrs ; Princess, ch. m., 17.1, 5 yrs ; Thistle, blk. g., 17.2, 5 yrs. Exhibitor, Wm. Hendrie, Hamilton.

HORSES IN HARNESS.

Mare or Gelding, over 14 hands, 1 inch and not exceeding 15 hands. To be shown to a gig, cart or phaeton.

Judges.—G. B. Hulme, New York ; Wm. West, Charlotte, Vt. ; W. J. Stark, Stouffville.

1st. Hands Off, br. g., 14.3, 6 yrs. Exhibitors, Crow & Murray, Toronto.
2nd. Gay Lady 2nd, b. m., 15, 4 yrs. Exhibitor, A. Yeager, Simcoe.
3rd. Gay Lassie, b. m., 15, 4 yrs. Exhibitor, A. Yeager, Simcoe.

Mare or Gelding, over 15 hands and not exceeding 15 hands 2 inches. To be shown to a gig, cart or phaeton.

1st. Gay Boy 2nd, b. g., 15.1, 4 yrs. Exhibitor, A. Yeager, Simcoe.
2nd. Sporting Duchess, b. m., 15.1¾, 6 yrs. Exhibitors, Crow & Murray, Toronto.
3rd. Corling, b. g., 15.2, 5 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.

Mare or Gelding, over 15 hands, 2 inches and under 16 hands. To be shown to a gig, cart or phaeton.

1st. Derby King, b. g., 15.2½, 4 yrs. Exhibitor, A. Yeager, Simcoe.
2nd. Creighton, b. g., 15.2 1/16, 7 yrs. Exhibitors, G. Pepper & Co,, Boston, Mass.
3rd. Confidence, br. m., 15.3, 4 yrs. Exhibitors, Crow & Murray, Toronto.

Mare or Gelding, 16 hands and over. To be shown to a gig, cart or phaeton.

1st. Montrave, ch. g., 16.0½, 5 yrs. Exhibitors, Crow & Murray, Toronto.
2nd. Duchess. br. m., 16.1, 5 yrs. Exhibitor, Peter B. Wood, M.D., Hamilton.
3rd. Flyer, b. g., 16.1, 7 yrs. Exhibitor. Mrs. F. M. McCoy, Toronto Junction.

Pair of Horses, Mares or Geldings, under 15 hands, 2 inches. To be shown to a four wheeled vehicle, suitable for park use.

1st. Show Girl, b. m., 15.1¾, 6 yrs; Sporting Duchess, b. m., 15 1¾, 6 yrs. Exhibitors, Crow & Murray, Toronto.
2nd. Gay Lady 2nd, b.m., 15, 4 yrs; Gay Lassie, b. m., 15, 4 yrs. Exhibitor, A. Yeager, Simcoe.
3rd. Little Creighton, b. g., 15, 7 yrs; Little Powder, b. g., 15, 7 yrs. Exhibitors, G. Pepper & Co.. Boston, Mass.

Pair of Horses, Mares or Geldings, 15 hands, 2 inches and under 16 hands. To be shown to a four wheeled vehicle, suitable for park use.

1st. Creighton, b. g., 15.2 1/16, 7 yrs; Corling, b. g., 15.2, 5 yrs. Exhibitors, G. Pepper & Co , Boston, Mass.
2nd. Confidence, br. m., 15.3, 4 yrs; Shipmate, br. m., 15.3. Exhibitors, Crow & Murray, Toronto.
3rd. Prudence, b. m., 15.2½, 4 yrs; Economy, b. m., 15 2½, 4 yrs. Exhibitor, A. Yeager, Simcoe.

Pair of Horses, Geldings or Mares, 16 hands and over. To be shown to a four wheeled vehicle.

1st. Mascot, br. g., 16.0½, 4 years; Escort, b. g., 16.0½, 4 yrs. Exhibitors, Crow & Murray, Toronto.
2nd. Flyer, b. g., 16.1, 7 yrs; On Time, b. g., 16, 7 yrs. Exhibitor. Mrs. F. M. McCoy, Toronto Junction.
3rd. Look Out, d. b. g , 16.0½, 6 yrs; The Colonel, d. b. g., 16, 5 yrs. Exhibitors, J. W. Fairweather & Co., Toronto.

Single Horses, Geldings or Mares, not under 15 hands. To be shown to a gig or dog cart and driven by exhibitor. Horses to count 60 per cent., vehicle and harness 40 per cent.
For amateurs only.

1st. Castor, b. g., 15.3, 5 yrs. Exhibitor, Chas. Boeckh, Toronto.
2nd. Her Excellency, b. m., 15.2½, 5 yrs. Exhibitor, W. A. Young, M.D., Toronto.

Pair of Horses, Geldings or Mares, not under 15 hands. To be shown to a T. Cart, Mail, Stanhope, Spider Phaeton or other suitable vehicle, and be driven by exhibitor. Horses to count 30 per cent., carriages 30 per cent., harness 20 per cent., liveries, etc., 20 per cent.
For amateurs only.

1st. Always Ready, b. g., 15.1, 7 yrs; Just Ready, b. g., 15.1, 7 yrs. Exhibitor, Geo. H. Gooderham, Toronto.

Single Horses, Geldings or Mares, any height. To be shown to a Victoria Cabriolet or Brougham. Horses to count 30 per cent., carriages 30 per cent., harness 20 per cent., liveries, etc., 20 per cent. For amateurs only.

1st. Look Out, d. b. g., 16.0½, 6 yrs. Exhibitor, J. W. Fairweather, Toronto.

Pair of Horses, Geldings or Mares, any height. Same conditions as previous class. For amateurs only.

1st. Mohwak, b g., 15.3, aged; War Eagle, b.g., 15.3, aged. Exhibitor, Geo. Gooderham, Toronto.
2nd. Queen, b.m., 15.3; Duchess, b.m., 15.3. Exhibitor, Lt.-Col. Pellatt, Toronto.

Pair of Horses, Geldings or Mares, not under 15 hands. To be shown to a T. Cart, Mail Stanhope, Spider Phaeton or other suitable vehicle. Horses to count 60 per cent. Appointments 40 per cent. For Dealers only.

1st. Sporting Duchess, b.m., 15.1¾, 6 yrs. ; Show-girl, b.m., 15.1¾, 6 yrs. Exhibitors, Crowe & Murray, Toronto.
2nd. Joker, blk.g., 15.2, 5 yrs. ; Magnum, b.g., 5.2, 15 yrs. Exhibitor, W. Harland Smith, Toronto.

Mare or Gelding not exceeding 15 hands 2 inches, bred in Canada, that has not won a 1st prize at any recognized Horse Show or Exhibition prior to being shown in this class. To be shown to gig, cart or phaeton.

1st. Wiry Jim, b.g., 15.2, 6 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.
2nd. Gray Boy, b.g., 15.2, 6 yrs. Exhibitor, J. J. Dixon, Toronto.

Mare or Gelding over 15 hands 2 inches, bred in Canada, that has not won a 1st prize at any recognized Horse Show or Exhibition prior to being shown in this class. To be shown to gig, cart or phaeton.

1st. Derby King, b.g., 15.2½, 4 years. Exhibitor, A Yeager Simcoe.
2nd. Prudence, b.m., 15.2½, 4 yrs. Exhibitor, A. Yeager, Simcoe.

Champion Harness Horse.

Creighton, b.g., 15.2 1/16, 7 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.

Tandems.

1st. Creighton, b.g., 15.2 1/16, 7 yrs. ; Wiry Jim, b.g., 15.2, 6 yrs. Exhibitors, G. Pepper & Co. Boston, Mass.
2nd. Show-girl, b.m., 15.1¾, 6 yrs. ; Sporting Duchess, b.m., 15.1¾, 6 yrs. Exhibitors, Crowe & Murray, Toronto.
3rd. Harmony, ch.g., 15, 7 yrs. ; On Time, br.g., 16, 7 yrs. Exhibitor, Mr. F. M. McCoy, Toronto Junction.

Tandems, for Amateurs only.

1st. Always Ready, b. g. 15.1, 7 yrs. ; Just Ready, b.g., 15.1, 7 yrs. Exhibitor, Geo. H. Gooderham, Toronto.
2nd. Rosseau Jewel, d.gr.m., 15.1, 7 yrs. ; Revenge, d.gr.m., 15 1½, 5 yrs. Exhibitor, Lt.-Col. Stimson, Toronto.

Four-in-hands.

1st. Exhibitors, G. Pepper & Co., Boston, Mass.
2nd. Exhibitor, A. Yeager, Simcoe.

SADDLE HORSES.

Best Saddle and Harness Horse, Mare or Gelding, 15 hands and over, to be shown in harness and under saddle.

Judges: W. S. Spark, Canterbury, Eng. ; Wm. West, Charlotte, Vt.

1st. Daisy Dean, ch.m., 15.2½, 5 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.
2nd. Othello, ch.g., 15.2, 5 yrs. Exhibitors, Crow & Murray, Toronto.
3rd. Sir Robert, ch.g., 15.3, 6 yrs. Exhibitor, Gordon J. Henderson, Hamilton.

Mare or Gelding over 14 hands 2 inches and not exceeding 15 hands 2 inches.

1st. Perfection, ch.g., 15.1¾, 6 yrs. Exhibitor. Miss E. Cory, Toronto.
2nd. Hugo, b.g., 15.1½, 4 yrs. Exhibitors. G. Pepper & Co., Boston, Mass.
3rd. Lady Brilliant, b.m.. 15.1½, 6 yrs. Exhibitor, J. G. Wilson, Paris Station.

Mare or Gelding over 15 hands 2 inches and up to carrying from 160 to 190 lbs.

1st. Daisy Dean, ch.m., 15.2½, 5 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.
2nd. Othello, ch.g., 15.2, 5 yrs. Exhibitors, Crow & Murray. Toronto.
3rd. Rattler, b.g., 16, 7 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.

Mare or Gelding over 15 hands 2 inches and up to carrying 190 lbs. and over

1st. Sir James, b.g., 15.3, 7 yrs. Exhibitor, Dr. Andrew Smith, Toronto.
2nd. Montrose, ch.g., 16.0½, 5 years. Exhibitors, Crow & Murray, Toronto.
3rd. Senator, ch.g., 16.2, 7 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.

Ladies' Saddle Horse not under 14 hands 3 inches, to be ridden by ladies

1st. Glennon, ch.g., 16, 6 yrs. Exhibitor, W. A. Young, M.D., Toronto.
2nd. Perfection, ch.g., 15.1¾, 6 yrs. Exhibitor, Miss E. Cory, Toronto.
3rd. Unity, ch. roan g., 16, 5 yrs. Exhibitor, W. D. Woodruff, St. Catharines.

Champion Saddle Horse

1st. Daisy Dean, ch.m., 15.2½, 5 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.

HUNTERS AND JUMPERS

Judges: J. K. Maddux, Warrenton, Va.; W. S. Spark, Canterbury, Eng.

Qualified Hunters, heavyweight, up to carrying 190 lbs. and over. To carry at least 180 lbs

1st. Cockatoo, br.g., 16, aged. Exhibitor, G. W. Beardmore, Toronto.
2nd. The Duke, b.g., 16.3, 5 yrs. Exhibitor, G. W. Beardmore, Toronto.
3rd. Thistledown, br.m., 16.1, 6 yrs. Ezhibitor, Crow & Murray, Toronto.

Qualified Hunters, Middleweight, up to carrying from 165 to 190 lbs. to hounds. To carry at least 165 lbs.

1st. Rattler, b.g., 16, 7 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.
2nd. Coquette, b.m., 15.3, 6 yrs. Exhibitors, Crow & Murray, Toronto.
3rd. Loraine, b.m., 15.2, 5 yrs. Exhibitor, Allen Case, Toronto.

Green Hunters, Heavyweight, up to carrying 190 lbs. and over to hounds. To carry at least 180 lbs

1st. Walsingham, gr.g., 16.1, 6 yrs. Exhibitor, L. Meredith, London.
2nd. Siberia, b.g., 16, 5 yrs. Exhibitors, Crow & Murray, Toronto.
3rd. Storm Signal, ch.g., 16, 5 yrs. Exhibitor, L. Meredith, London.

Green Hunters, Middleweight, up to carrying from 155 to 190 lbs. to hounds. To carry at least 165 lbs

1st. Sir Robert, ch.g., 15.3, 4 yrs. Exhibitor, Gordon J. Henderson, Hamilton.
2nd. Wasson, b.m., 15.3, 4 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.
3rd. Elcho, b.g., 16, 5 yrs. Exhibitors, Crow & Murray, Toronto.

Lightweight Hunters open to both green and qualified hunters, up to carrying from 150 to 165 lbs. to hounds. To carry at least 150 lbs.

1st. The Jap, b.g., 15.3, 6 yrs. Exhibitors, Crow & Murray, Toronto.
2nd. Peerless, b.m., 15.2½, 6 yrs. Exhibitors, Crow & Murray, Toronto.
3rd. Hugo, b.g., 15.1½, 4 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.

Jumping, open to all. Performances over fences only to count.

1st. Blue Girl, gr.m., 15.3, aged. Exhibitors, G. Pepper & Co., Boston. Mass.
2nd. Senator, ch.g., 16.2, 7 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.
3rd. Guardian, ch.g.; 15.3, 5 yrs. Exhibitor, A. Beck, London.

Best performance over 6 jumps; 2 at 4 feet; 2 at 4 feet 6 inches; 2 at 5 feet, carrying not less than 140 lbs.

1st. Equal { Coquette, b.m., 15.3, 6 yrs. Exhibitors, Crow & Murray, Toronto.
{ Myopia, br.g., 15.3, aged. Exhibitors, G. Pepper & Co., Boston, Mass.
3rd. Timber Topper, b.g., 15.2, 8 yrs. Exhibitors, Crow & Murray, Toronto.

Corinthian Class. Open to to Hunters. Horses to be ridden by Members of some recognized Hunt

1st. Coquette, b.m., 15.3, 6 yrs. Exhibitors, Crow & Murray, Toronto.
2nd. Cockatoo, br.g., 16, aged. Exhibitor, G. W. Beardmore, Toronto.
3rd. Blue Girl, gr.m., 15.3, 5 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.

Corinthian Class Open to horses owned by members of a recognized Hunt and ridden by owner

1st. Black Knight, blk.g., 16.1, 5 yrs. Exhibitor, A. Rogers, Hamilton.

Toronto Hunt Plate. Open to half-bred horses, owned and ridden by members of the Toronto Hunt.

1st. The Duke, b.g., 16.3, 5 yrs. Exhibitor, G. W. Beardmore, Toronto.
2nd Cockatoo, br.g., 16, aged. Exhibitor, G. W. Beardmore, Toronto.

Ladies' Hunters up to carrying 150 lbs. to hounds, to be owned by a member of a recognized Hunt and to be ridden by ladies

1st. Majesty, br.m., 15.3, 8 yrs. Exhibitor, Miss Melvin Jones, Toronto.
2nd. Unity, ch.roan.g., 16, 5 yrs. Exhibitor, W. D. Woodruff, St. Catharines.

High Jump. Open to all, commencing at 5 feet and raised 6 inches till 6 feet is reached, after which it is raised 4 inches at a time.

Equal { 1st. Myopia, br.g., 15.3, aged. Exhibitors, G. Pepper & Co., Boston, Mass.
{ 2nd. Thistledown, br.m., 16.1, 6 yrs. Exhibitors, Crow & Murray, Toronto.
3rd. Senator, ch.g., 16.2, 7 yrs. Exhibitors, G. Pepper & Co.. Boston, Mass.

Champion Hunter Class

1st. Rattler, b.g., 16, 7 yrs. Exhibitors, G. Pepper & Co., Boston, Mass.

ROADSTERS

Judges.—J. Sinclair, V.S., Cannington ; Robt. Graham, Claremont.

Mare or Gelding, trotter, not exceeding 15.2

1st. Lady Cresceus, ch.m., 15.1½, 6 yrs. Exhibitor, Miss K. L. Wilkes, Galt.
2nd. Ruth, ch.m., 15.1½, 5 yrs. Exhibitor, Geo. Tilt, Blair.
3rd. Wild Duchess, 45609, blk.m., 15.2, 6 yrs. Exhibitor, R. I. Henderson, Toronto.

Mare or Gelding, trotter, over 15.2

1st. Black Beauty, blk.g., 15.3, 5 yrs. Exhibitor, R. J. Fleming, Toronto.
2nd. Bobs, ch.g., 15.2½, 7 yrs. Exhibitor, T. A. McKee, Toronto.
3rd. Clifford, br.g., 15.3, 5 yrs. Exhibitor, S. McBride, Toronto.

Pair of Mares or Geldings

1st. Thelma, b.m., 15.2, 5 yrs ; Luella, b.m., 15.2, 4 yrs. Exhibitor, J. D. McGibbon, Milton.
2nd. Emily, ch.m., 15.1½, 5 yrs ; Ruth, ch.m., 15.1½. 5 yrs. Exhibitor, Geo. Tilt, Blair.
3rd. Lady Cresceus, ch.m., 15.1½, 6 yrs ; Mabel, br.m., 15.1½, 6 yrs. Exhibitor, Miss K. L. Wilkes, Galt.

Roadster, Trotter or Pacer, any age

1st. Lady Cresceus, ch.m., 15.1½, 6 yrs. Exhibitor, Miss K. L. Wilks, Galt.

Mare or Gelding Pacer, not exceeding 15.2

1st. Honest Billy, ch.g., 15.1, 7 yrs. Exhibitor, Thos. Bartrem, Toronto.
2nd. Bertha W., b.m., 15.1, 5 yrs. Exhibitor, P. Maher, Toronto.
3rd. Minnie Keswick, ch.m., 15.1½, 6 yrs. Exhibitor, G. W. Curtis, Lindsay.

Mare or Gelding, Pacer, over 15.2

1st. Harry V., b.g., 15.2½, 5 yrs. Exhibitor, P. S. Laurason, Preston.
2nd. Little Boy, ch.g., 16, 6 yrs. Exhibitor, C. Snow, Toronto.
3rd. Gertie L., br.m., 15.2½, 6 yrs. Exhibitor, J. Dowden, Toronto.

PONIES

Stallion, 14.1 inch and under

1st. Joe Rock, black, 13.1½, 6 yrs. Exhibitors, Graham Bros., Claremont.
2nd. Black Diamond, black, 13.1, 4 yrs. Exhibitor, Mrs. Chas. Wilmot, Port Hope.
3rd. Duke of York, brown, 13.1, 5 yrs. Exhibitor, Broadview Pony Farm, Toronto.

Single Pony in harness. 12 hands 1 inch and under

1st. Miss Geary, br.m., 10, 3 yrs. Exhibitor, H. D. Bailey, Toronto.
2nd. Flossie, b.m., 12, 4 yrs. Exhibitor, J. Garrett, Toronto.
3rd. Billy G., b.g., 11.1¼, 8 yrs. Exhibitor, J. C. Anderson, Toronto.

Single Pony in harness, over 12 hands 1 inch, up to 13 hands 1 inch

1st. Dolly Varden, ch.m., 13.0½, 5 yrs. Exhibitor, Ewart Mills, Toronto.
2nd. Sunrise, ch.m., 13, 6 yrs. Exhibitor, F. Maher, Toronto.

Single Pony in harness, over 13 hands 1 inch up to 14 hands 1 inch

1st. Lady Dainty, roan m., 14.1, 6 yrs. Exhibitor, Eric Skead, Ottawa.
2nd. Jessie, ch.m., 14, 5 yrs. Exhibitor, Broadview Pony Farm, Toronto.
3rd. Major, b.g., 14.0½, 7 yrs. Exhibitor, Thos. Dunn, Mimico.

Pair Ponies in harness, over 12 hands 1 inch to 14.1 inch

1st. Lady Isabella, ch.m., 12.2, 5 yrs; Lady Constance, ch.m., 12.2, 6 yrs. Exhibitors, Masters and Misses Gooderham, Toronto.
2nd. Nellie, gr.m., 13.2, 4 yrs; Clare, gr.m., 13.2, 5 yrs. Exhibitor, E. B Clancy, Toronto.
3rd. Ada, br.m., 14.1, 6 yrs; Minnie, br.m., 14.1, 6 yrs. Exhibitor, Jas. Russell, Toronto.

Boy or Girl Rider, under 16 years of age, on Pony 14 hands 1 inch and under

1st. Exhibitor, Carl Roesler, Toronto.
2nd. Exhibitor, R. K. Hodgson, Toronto.

Saddle Pony, 14 hands 1 inch and under, to be shown at a walk, trot and canter

1st. The Cat, b.m., 14.1, 6 yrs. Exhibitor, D. W. Baxter, Toronto.
2nd Jacky, b.g., 14.1, 7 yrs. Exhibitor, Major Forester, Stanley Barracks.
3rd. Squaw, roan m., 14.0½, 8 yrs. Exhibitor, Shirley Stewart, Toronto.

Performance of Pony, 14 hands 1 inch and under, over 3 jumps

1st. Creta, b.m., aged. Exhibitor, Norman Davis, Toronto.
2nd. D. D., piebald g., 14.1, 6 yrs. Exhibitor, D. Douglas Young, Stanley Barracks.
3rd. Fair Flora, b.m., 13. Exhibitor, Melville Davis, Toronto.

Combination Pony. Challenge Cup, presented by Canadian Pony Society

1st. Lady Dainty, roan m., 14.1, 6 yrs. Exhibitor, Eric Skead, Ottawa.

Pony, Stallion, Mare or Gelding not exceeding 14 hands 1 inch, sired by Registered Hackney Stallion and shown in harness

1st. Black Diamond, blk.s., 13.1, 4 yrs. Exhibitor, Mrs. Chas. Wilmot, Port Hope.

Pony Championship Class

1st. Joe Rock, black s., 13.1½, 6 yrs. Exhibitors, Graham Bros., Claremont.

POLO PONIES

Polo Ponies up to carrying 155 lbs

1st. Jack, b.g., 14.1, 7 yrs. Exhibitor, Major Forester, Stanley Barracks.
2nd. Dingley, b.g., 14.1, 7 yrs. Exhibitor, Major Forester, Stanley Barracks.

Polo Ponies up to carrying 185 lbs.

1st. The Frenchman, dark b.g., 14.2, 7 yrs. Exhibitor, A. O. Beardmore, Toronto.
2nd. Satine, blue roan m., 14.2, 7 yrs. Exhibitor, A. O. Beardmore, Toronto.

String of 2 Polo Ponies any weight, belonging to one member of a recognized Canadian Polo Club

1st. Lady Jane, black m., 14,2, 7 yrs ; The Frenchman, dark b.g., 14.2, 7 yrs. Exhibitor, A. O. Beardmore, Toronto.
2nd. Fly, b.m., 14.2, 6 yrs ; Nine Pins, b.g., 14.2, 5 yrs. Exhibitor, Major Williams, Stanley Barracks.

SPECIAL CLASSES

Best and Best Appointed Pair of Livery Horses, to be shown to Laudau

1st. Exhibitors, Doane Bros., Toronto.
2nd. " " " "

Mare or Gelding, to be shown in Single Harness and Delivery Wagon, actually as used in local deliveries

1st. Flashlight, br.g., 16, 7 yrs. Exhibitor, Jess Applegath, Toronto.
2nd. Neapolitan, b.g., 16.1, 5 yrs. Exhibitors, City Dairy Co., Toronto.
3rd. Maud, b.m., 16, 5 yrs. Exhibitors, J. W. Fairweather & Co., Toronto.

Mare or Gelding, to be shown in Single harness and Butcher's Cart, as actually used in local deliveries

1st. Brownie, br.m., 15.2, 8 yrs. Exhibitor, Geo. Clayton, Toronto.
2nd. American Girl, b.m., 15.1, 7 yrs. Exhibitor, A. W. Holman, Toronto.
3rd. Sir John. ch.g., 15.2, 5 yrs. Exhibitor, J. W. Holman, Toronto.

Performance of Professional Private Coachman in Livery, with Pair and Carriage

1st. Jas. Morton, coachman for Geo. Gooderham, Toronto.
2nd. W. Douglas, " W. D. Beardmore, "
3rd. E. Palmer, " L. H. Clarke, "

Horse and Runabout, for Amateurs only, to be driven by Owner

1st. Gay Boy, b.g., 15.2, 6 yrs. Exhibitor, J. J. Dixon, Toronto.
2nd. Always Ready, b.g., 15.1, 7 yrs. Exhibitor, Geo. H. Gooderham, Toronto.

Mare or Gelding, suitable for a Lady to drive. To be driven by a Lady ; Dealers excluded

1st. Gay Boy, b.g., 15.2, 6 yrs. Exhibitor, J. J. Dixon, Toronto.
2nd. Her Excellency, b.m., 15.2½, 5 yrs. Exhibitor, W. A. Young, M.D., Toronto.

Hunt Club Cup. For 3 best Horses representing a recognized Hunt. Must be Qualified Hunters and be ridden by Master and 2 Whips, or by any 3 Members in Pink

1st. G. W. Beardmore's Team, Toronto Hunt Club.

GOVERNOR-GENERAL'S PRIZE

For year-old Canadian bred Gelding or Mare, suitable for Riding or Cavalry purposes, not less than 15 hands and not over 15.3, to be sired by a Thoroughbred Stallion

1st. High Time, b.g., 15.2, 4 yrs. Exhibitor, F. Maher, Toronto. Sire, Wyndham.
2nd. The Governor, b.g., 15.2¾, 4 yrs. Exhibitor, W. A. Lawrence, Milton. Sire, Trinity.
3rd. Star, br.g., 15.3½. Exhibitor, Jas. Weatherill, Galt. Sire, Citizen.

REPORT

OF THE

FARMERS' INSTITUTES

OF THE

PROVINCE OF ONTARIO

1902 AND 1903.

PART I.—FARMERS' INSTITUTES.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO.)

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NINTH ANNUAL REPORT

OF THE

FARMERS' INSTITUTES OF ONTARIO

FOR THE YEAR

1902 AND 1903.

To the Honorable the Minister of Agriculture:

Sir,—I have the honor to present herewith the Ninth Annual Report of the Superintendent of Farmers' Institutes.

THE YEAR'S WORK.

The work of the year has progressed favorably. The total membership for the Province, to June 30th, is 23,754. During the year 837 meetings were held, and 3,377 papers read or addresses delivered, while 126,459 persons attended the meetings.

GOOD SEEDS.

Besides the regular subjects discussed at the meetings we made a specialty last year of "good seeds." Samples of good and bad seeds, in small bottles, were furnished the delegates, together with large charts showing the percentage of weed seeds found in commercial samples as ordinarily sold by our merchants. It was appalling to find that in many instances seed was being offered for sale in Ontario containing millions of weed seeds of twenty or more varieties. Our delegates were instructed to point out the differences in good and bad seed, and to impress upon the farmers of Ontario the necessity for using only good seed, if they would keep their farms clean.

SEED FAIRS.

In the spring of the year, at several points in the Province, local Farmers' Institutes conducted Seed Fairs. These fairs consisted of a collection of grains and grass seeds grown by the farmers themselves, and exhibited for the purpose of showing their neighbors that they had good, clean seed for sale. At the fair in East York, held under the auspices of the Farmers' Institute, in February last, 20,000 bushels of clean grain were offered for sale, and most of it changed hands at that time. As an inducement to exhibit specially cleaned seed, the price is set by the Institute Board at ten cents above the market price.

EXCURSIONS.

The excursions to the Ontario Agricultural College were continued this year. During the month of June fully 40,000 persons visited that institution, and we are pleased to

note that from year to year our delegates to Farmers' Institutes find their addresses better received where persons in the audience have had the privilege of visiting the College and inspecting the farm. Arrangements are already being made for similiar excursions next year.

WOMEN'S INSTITUTES.

A report of the work of the Women's Institutes is published as Part II. of the Farmers' Institute Report each year, and in it will be found many subjects of interest to women. I wish to say here, however, that the Women's Institute work has materially added to the Farmers' Institute movement, in that, as a rule, these two branches hold union meetings at night during the winter time. Three years ago we were confronted with the problem as to what was to become of the evening meetings. The young people were demanding a lighter form of entertainment than our delegates were able to give them, while our delegates found themselves handicapped when asked to deliver addresses on subjects pertaining to agriculture, between the acts of a melodrama, or the songs and recitations of a comic singer or reciter. The formation of the Women's Institutes has solved the problem, and with the assistance of the ladies in the evening meetings all factions in the community are satisfied.

FALL FAIRS.

I am pleased to state that a more friendly feeling is noticeable each year between the officers of the Farmers' Institutes and the different Fair Boards in the country. It is our hope to bring these two organizations into yet closer union. Through the Institutes it is our object to help the farmer toward a knowledge of better methods of farm management. By free discussion at these meetings the farmer gets new ideas in regard to his work, which enables him to solve problems which have worried him on his farm. He is also advised of new varieties of plants and animals, and is thus enabled to improve his live stock and the feed which is necessary for their development. The Agricultural Societies, on the other hand, are endeavoring by practical demonstration to show at the fall fairs the best products of the farm and garden. The fair, then, must become in the broadest sense a practical Farmers' Institute meeting, and both boards are working toward the same end. We trust that they will grow closer together, each working for the good of the other, and both working for the uplifting of agriculture in the Province of Ontario.

I have the honor to be, sir,

Your obedient servant,

G. C. CREELMAN,
Superintendent.

Toronto, July 1st, 1903.

AGRICULTURE.

THE CLOVER FAMILY.

By J. H. Smith, Langbank.

There are three families of plants which are of great importance to the farmer. These are the Rose (Rosaceae) family, the Grass (Gramineae) family, and the Clover (Leguminosae) family. To the first of these families belong a large number of our choicest fruits and most beautiful flowers. The Grass family includes many of our most valuable fodder and grain crops. In the clover family are included the beans, peas, vetches, clovers, and many others rich in nitrogen.

While the two former families contain many plants highly important on account of their food value, yet the clover family is by far the most important, not only on account of the food value of the plants which it contains, but also on account of the manurial value of the waste when these plants are fed to farm animals.

Most intelligent farmers are well aware of the fact that to feed stock profitably they must use well-balanced rations. If a ration is fed in which the proportion of carbohydrates to protein is too great, much of the carbohydrates will not be assimilated by the animal and will thus be wasted. On the other hand, if the proportion of protein to carbohydrates is too great, much of the protein will be wasted. Under the most favorable feeding conditions a ration of one part protein to about six parts carbohydrates has been found most profitable.

On our Canadian farms we can grow a wide variety of plants suitable for food for horses, cattle, sheep and hogs. On examination, however, we find that a very large majority of these have wide nutritive ratios. With few exceptions, it is only in the clover family that we find plants having narrow nutritive ratios. Consequently we have to look in this family for material rich in protein to balance properly the many food products which are rich in carbohydrates, but deficient in protein.

The pea has a nutritive ratio of 1 to 3.1. Hence it is well suited to bring up the proportion of protein when added to most of the other grains which have wide ratios. It is the only grain which can be grown profitably on our farms which is suitable for this purpose. For this reason alone the area sown with peas should be largely increased. It is a matter of regret that the ravages of the pea weevil have been so disastrous of late years that many farmers have ceased to grow this very important crop.

If all pea-growers would act intelligently and unitedly they could control the weevil to such an extent that profitable crops could be grown. In order to do this, the peas should be cut a little on the green side, and threshed as soon as possible after being harvested. At this stage few of the weevils will have escaped from the peas. All that are still in the peas can easily be killed, either by chopping or the use of carbon-bisulphide. Immediately after threshing, all peas that cannot be chopped in the course of a week or so, should have an application of carbon-bisulphide gas. The method is very simple, and the material inexpensive. If an air-tight bin is at hand the peas should be placed in it. A plate, or other shallow vessel, should be placed on top of the peas, into which should be poured about two ounces of carbon-bisulphide for every five bushels of peas. The bin should then be carefully covered with blankets, rugs, etc., to prevent the gas from escaping. After about forty-eight hours the coverings may be removed, and any gas that remains will soon escape. If an air-tight bin cannot be secured a coal oil barrel will answer very well. In treating smaller quantities of peas it is well

to increase the quantity of carbon-bisulphide to about three ounces to five bushels of peas.

Alfalfa, another member of the clover family, also has a narrow nutritive ratio, being about 1 to 3.7. Like the pea, it is valuable as a means of increasing the proportion of protein in the food products of the farm. Being a perennial, one seeding lasts for many years. On account of the great depth to which its strong tap roots strike down into the subsoil it resists the drouth of summer. As it has a vigorous growth, three crops of hay can be secured in one season. Wherever the soil is suitable for its culture, this plant is rapidly growing in favor among Canadian farmers.

The clover is the most extensively grown member of this family. It has nearly a perfectly-balanced nutritive ratio, being composed of one part of protein, or flesh-forming material, to 5.8 parts of carbohydrates, or heat and energy-producing material. In addition to this, it contains a high percentage of ash or bone-forming material.

Much of the feeding value of clover and alfalfa is lost by allowing the plants to become over-ripe before cutting, and also by permitting too much exposure to the sun and rain after cutting. To make good hay, clover should be cut when just in full bloom and before the blossoms begin to turn brown. The mower should not be started in the morning until all dew and other foreign moisture has been evaporated. In the afternoon the clover which was cut in the forenoon should be raked and coiled, to protect it from exposure to the sun, rain and dew. Many farmers are successful in making the very finest quality of hay by drawing it into the barn the day it is cut. Others prefer to allow it to stand in the coil a day, or even two or three days, before drawing it. If the weather is fair and settled this method has the advantage of producing a crop which is much lighter to handle. If, however, the weather is unsettled, the former method is the better, as the clover is thus secured without exposure to either sun or rain.

A well-cured sample of clover or alfalfa hay should have all the leaves attached to the stems. Both these and the blossoms should have their natural color. The blossoms should contain as much nectar or honey as they did when the hay was cut. Clover and alfalfa in such a condition have the highest possible amount of digestible material. If the hay has been poorly cured, many of the leaves drop off, the honey soon disappears from the blossoms, and in many cases the blossoms go, too. What is left is largely changed into cellulose or fibre, and is thus rendered indigestible.

Since the members of the clover family are rich in nitrogen, many farmers are of the opinion that they must have a strong tendency to exhaust the supply of available nitrogen in the soil. Instead of this being the case, the very opposite is true, as they draw very lightly on the nitrogen in the soil. They have the power, through the agency of very minute organisms, of taking their supply of nitrogen very largely from the air. If a young clover plant is carefully removed from the soil, washed and examined, it will be seen that the roots have a large number of small, round bodies, or tubercles, attached to them. These tubercles are the laboratories in which these minute organisms are rapidly changing the nitrogen of the air into a form which is available for plant food.

Again, many of these plants, like clover and alfalfa, have strong tap roots, which strike deep into the subsoil. In this way they have the power to feed on the plant food which has been carried below the reach of the ordinary field crops. Much of the fertility which would otherwise be lost can thus be brought to the surface again, through the agency of members of the clover family. On account of the power which clover has of taking nitrogen from the air, and of bringing back to the surface, fertility which had leached below the reach of ordinary plants, it becomes the key to the solution of the problem of growing, year after year, profitable crops, and yet maintaining and ever increasing the fertility of the soil. It has been estimated that when a crop of clover is re-

moved, the stubble and roots contain as much fertilizing material as has been taken off in the crop of hay. Feeding experiments show that when clover hay is fed, the animal removes less than 25 per cent. of the fertilizing material contained in the hay. From these considerations we can readily see that it is possible to feed a crop of clover hay, and by returning all the manure. to leave on the soil about seven-eighths of the whole manurial value of the crop. Since the nitrogen, which is the most expensive fertilizing element, has been taken from the air, and from depths beyond the reach of other plants, clover thus becomes a means by which nitrogen can be added to our fields at little cost.

Clover is an excellent green manure, and this method of applying it has some advantages. In the first place. it does away with all the labor necessary to harvest, feed, and return the manure to the field. When the crop is an even one, it has the advantage of being evenly distributed over the ground. If, however, it is not an even crop, it has this disadvantage, that the spots which need manure most will get the least of it. Such spots should receive a coat of barnyard manure to supplement the clover. Notwithstanding these advantages, except in some rare cases, it will, on account of the high food value of clover, be found more profitable to cut, cure and feed the clover and return the manure to the field.

In addition to the fertilizing effect of clover, it, as well as many other legumes, has the power of rendering the land more friable. The large tap roots act as a good subsoiler, rendering the soil more porous. For these reasons, if for no others, clover should be grown as extensively as possible on clay soil.

A clover crop is an excellent thing to destroy weeds. If there is a good catch, and it is not pastured too much in the fall, it starts early in spring and soon smothers most weeds. Again, since it is ready to cut before most weeds are ripe, they are thus prevented from seeding, should any of them succeed in making their way through the clover.

But, while clover may be used as a means of destroying weeds, it may also be the means of spreading them. Investigations which have been carried on at the Seed Laboratory at Ottawa show that nearly all the clover seeds which are offered for sale contain a large amount of foul seeds. It is to be hoped that good may result from the work which is being done in this line at Ottawa. Good seed which is grown in the neighborhood is preferable to seed from a distance, as imported seed may be the means of bringing into the neighborhood new weeds. If a good seed grown in the neighborhood cannot be obtained, the next best thing would be to secure the highest quality of recleaned seed from a reliable seedsman. Try to secure a sample in which the percentage of vitality is high. In most cases where the percentage of vitality of a sample of seed is low, the vitality of the individual seeds will be low, and while these seeds may germinate, they will produce weakly plants. Every farmer should procure the very best seed possible, regardless of the cost. A bushel of pure, vital seed is easily worth two or three dollars more than a bushel of seed which is only medium or fair. A sample of seed containing only 75 per cent. of pure, vital seed, quoted at $6.00 per bushel, actually costs $8.00 per bushel for pure, vital seed, and the farmer who sows such seed will sow on his fields a large number of foul weed seeds.

On account of the high food value, as well as the important manurial value of the legumes, they should occupy a large space on every farm. Farmers should work unitedly and intelligently in their efforts to control the pea weevil. They should demand the highest quality of seed, and they should be willing to pay a fair price in order to secure it.

CLOVER, THE KEY TO SUCCESSFUL FARMING.

By F. M. Lewis, Burford.

There are in all about 150 varieties of clover, thirteen of which are natives of Britain. Many of them are useful, but some are weeds. There are about five varieties cultivated in Ontario—the common red, large red or bull, alsike, white and alfalfa. The common red is most largely grown, and is that which is referred to at this time.

The seed is a very important consideration, and the result of the recent seed investigation is known by most of our farmers, and no doubt will be a great stimulus to the growing of better seed. The buying of inferior seed is a loss in many ways. Frst, after deducting for weeds, the cost is more than that for pure, fancy seed. Second, the seeding of our farms with weeds occasions the expense of cultivation for eradication. The weeds also use the plant food which the growing crops should have. It takes as much plant food and moisture to grow a weed as it does a useful plant. Third, when raising seed for sale the market value is greatly reduced because of weed seeds. A good catch of seed is usually got when sown with fall wheat or rye, about the time of the last snow, or before the frost is out of the ground. If you wish to harrow wheat, sow as soon as the ground is settled, and follow with a sharp harrow, weighted with a heavy chain.

The best results from sowing with spring grain are obtained upon corn or root ground which has not been plowed the previous fall, and is fitted in spring with a disc or cultivator, making a good, mellow seed bed. Sow from 8 to 10 pounds (or 5 to 6 if alsike) per acre, being very sure to have your seeder set to deliver seed ahead of drill hoes.

It has been tested satisfactorily that a good seeding does not injuriously affect the growing crop. Such a seeding has produced over eight tons per acre (stems and roots for 9 inches in depth) in five and a half months. This is very valuable, if only to plow down again at once. For some years this has been tested at our Ottawa farm, and very large gains are got from the crops which follow. Clover is of much more value for plowing under, when it reaches maturity, than when in its greener state.

There are three elements required by our growing crops, which are usually lacking in some degree, viz.: nitrogen, phosphoric acid, and potash. In a commercial way the nitrogen will cost from 12 to 20 cents per pound; the others 4 to 6 cents per pound. However, Nature has dealt kindly with us and furnished us with a class of plants, of which clover is one, which have the power to collect and store (by means of soil bacteria) the free nitrogen of the atmosphere. Prof. Robertson, of Ottawa, told us at the meeting of the Experimental Union, that our soils were not exhausted, but that the available supply of phosphates and potash was depleted, and we must help the plant to unlock more. Now, the growing clover stores the nitrogen, then it is plowed down, or harvested and fed to stock, then the manure is plowed under. The rotting of vegetable matter in the soil greatly facilitates the liberating of the mineral elements, and retains them when liberated. In this way the clover helps us to supply all three of the elements needed in the soil.

A real good crop of clover contains about the same fertility as ten tons of barnyard manure applied per acre. As farmers we do not realize the value of vegetable matter in our soils. It is the great soil regulator, and if we cannot get clover, plow under some other vegetable matter, as any kind is better than none.

Clover is valuable not only as a fertilizer, but also as a food, it being the nearest to a balanced ration of any of our rough foods. It is not only good for our larger animals, but hogs when fed a small allowance (steamed) once a day with their chop,

have been known to make 30 per cent. better gain. The successful poultryman also adds his words of commendation.

The most satisfactory method of curing is to cut in the morning, put tedder over as soon as wilted and frequently during the day, then rake and coil as soon as about half dry, allowing it to cure in the coils. In this way hay can be well made in very catchy weather, and will be of superior quality.

Clover is the best crop we can grow as a soil improver, when turned under, and when cured is the most valuable hay, giving also the best value as a fertilizer after feeding. Let us grow more clover and grow it oftener.

DISCUSSION.

Q.—What quantity of clover seed do you sow? A.—F. M. Lewis, Burford. From 8 to 10 of red and 5 to 6 of alsike gives a good seeding.

Q.—Can you not get good seeding with much less seed? A.—You might some seasons, but it is so important that you cannot afford to risk it for the small extra cost.

Q.—Do you think it will pay an ordinary farmer to sow clover with his spring crop and plow it down that fall? A.—At the Ottawa farm, where clover was sown with spring wheat and plowed down that same fall, the oat crop the following season yielded over nineteen bushels per acre more than where clover was not sown, and without any additional fertilizer the following season gave a gain of fifteen bushels of barley. If oats were worth 30 cents and barley 40 cents, the addition to the crop in cash would be $11.70, beside the additional straw. Cost of seed, 10 lbs. at 12½c, $1.25, making the profit on investment, $10.45.

Q.—When do you sow the seed? A.—About the last snow fall or before the frost is out of the fall wheat. If you wish to harrow the wheat, wait until the ground settles, then sow, weighting the harrow with logging chains.

Q.—Is clover better feed for farm stock than timothy? A.—It is decidedly better feed for the most of stock. The majority of farmers are either producing milk or growing young stock, and clover hay contains just the material for that purpose.

Q.—What is clover hay worth for manure? A.—A ton of well-cured clover contains nitrogen, phosphate and potash to the value of over $7.50. The value after feeding depends on what stock we feed, and will be from $5.00 to $6.00.

Q.—What is the value of timothy hay for manure? A.—The hay is worth $4.35; after being fed, $2.50 to $3.50 per ton.

Q.—Is timothy hay exhaustive of soil fertility? A.—It takes about as much fertility from the soil to grow two tons of such hay as fifteen tons of corn.

Q.—How is it that clover is such a soil improver? A.—Clover is one of a class of plants called legumes, which have the power of gathering and storing in its roots the free nitrogen from the atmosphere. Nitrogen as a commercial fertilizer is the most expensive to buy. Clover frequently used in our crop rotation furnishes plenty of this for nothing. The rotting of the plant in our soil is a splendid factor in the liberating and retaining of other plant foods.

Q.—Is clover as good for our soil as barnyard manure? A.—It is much better than some barnyard manure. A good crop of clover plowed down contains fertility equal to an application of about ten tons of manure per acre.

Q.—Can we afford to sow clover just for a crop to plow under? A.—Yes. Ten pounds of seed per acre is a good seeding, and from this amount at our Ottawa farm, grew from May 6th (sown with barley) to October 20th eight and one-quarter tons (roots and stems) per acre. By May 21st of the following year over fifteen and a half

tons per acre was the yield. This amount of seed at 12½c per pound would cost $1.25, so surely this is a bargain in fertility.

Q.—Which does the soil the most good, to plow clover under or make into hay, then feed and plow manure under? A.—It certainly will do most good to plow the clover down, for then you put all the fertility the plant contains into the soil, and the more vegetable matter put into the soil to rot, the better for the soil.

Q.—Which is the best clover to plow down? A.—An analysis does not show much difference, but the best is perhaps that with the deepest root and largest top.

Q.—Would you sell your straw and buy clover seed? A.—No, keep your straw and buy clover seed.

Q.—Is not clover hay very apt to give horses the heaves? Q.—It is the feeder rather than the feed. Do not feed so liberally, then water and drive hard. Less hay would often do more good.

Q.—In spring seeding, do you do any work after seeding? A.—Yes, as soon as the soil is dry, roll and give a light stroke of the harrow.

Q.—Why is clover best for young stock? A.—It is rich in protein, which goes to build up bone and muscle, and for the dairy man, produces milk.

Q.—When is clover best to cut for hay? A.—From full bloom until one-third of the heads are browned.

Q.—Which is of most value as a manure, clover or timothy? A.—Clover $7.47, timothy $4.35.

Q.—In spring seeding, do you sow before or after the drill. A.—Always set the drill to deliver seed ahead of hoes.

Q.—Is top dressing a good plan to get a catch? A.—The very best plan where you have the manure.

Q.—When would you apply manure to a field? A.—Just as soon as possible.

Q.—Would you spread manure or leave in piles in winter? A.—Spread on most soils.

Q.—Would you spread on a side hill? A.—Yes, try it for yourself and be convinced.

Q.—Does it improve manure to put it into a heap to rot? A.—It is certainly better to put it into a neat pile if it is going to be left to stand, rather than have it scattered around the barnyard, but it is of the utmost importance that rotting should take place in the soil, for when heating in the pile the most valuable part of the manure gets away, and we want that heating process to take place in the soil.

Q.—What is the best method of applying manure? A.—Top dressing. If too coarse for that, keep as near the surface as possible

Q.—Why is humus so valuable to the soil? A.—It livens and improves the tilth of clay soils, keeps the sandy soil from leaching, and warms them both. The lack of humus is the chief cause of unproductiveness in our soils.

Q.—How can we increase the humus of our soils? A.—Grow clover, plow down barnyard manure, or any green crop you can grow. Buy your neighbor's straw stack for a few years, then you can buy his farm.

Q.—What is the most suitable land for growing alfalfa? A.—J. W. Clark, Onondaga. Alfalfa does best on a dry subsoil.

Q.—Will it do sown on fall wheat or on oats in spring? A.—It does much better sown alone or with a nurse crop of barley, sown about one bushel to the acre. Being a large seed, it is better to sow in front of the drill, so as to cover the seed.

Q.—How many pounds should be sown to the acre? A.—Not less than 15 pounds.

Q.—Is alfalfa good for hay for feeding stock? A.—You cannot get anything better if it is cut at the proper time and well cured.

Q.—What is the proper time to cut it? A.—When about one-third in blossom, not over this, as it is likely to get woody.

Q.—Is it as hard to cure as red clover? A.—No, as it is a solider stem and not so sappy, consequently can be drawn in greener.

Q.—How would you manage the crop? A.—Cut in the morning after the dew is off, tedd at noon and coil at evening before dew falls, for if left exposed to the dew the leaves bleach very easily. Be careful to haul in next day.

Q.—Has alfalfa as high a feeding value as our other clovers? A.—I consider it much superior, if properly cured, for horses and all kinds of stock. I have heard some stockmen say that one ton of well-cured alfalfa hay was equal to one ton of bran for feed.

Q.—Does it pay to grow clover for manure? A.—Clovers are some of our very best manures, especially when plowed down.

Q.—Is there any particular value in land plaster as a fertilizer? A.—Not so much on our cereal grain crops, but it is very valuable on our clover and peas.

Q.—Is there as much feeding value in alfalfa clover as in our common red clover? A.—I have found it to be very much superior, either as a pasture or as hay, if cut in proper time.

Q.—How do you sow lucerne? A.—F. C. Elford, Holmesville. We usually follow a hoe crop, seed with oats or barley, having the land previously worked into the best condition. Put the seeder in front of the drill and sow at least twenty pounds to the acre.

Q.—How long will it remain in the ground? A.—In suitable land for years, some say forever, but of that I am not sure.

Q.—What kind of soil is most suited? A.—It will thrive on any soil that wheat will, but is best suited when there is a porous subsoil.

Q.—Can you pasture it? A.—Yes, it makes excellent pasture, but it is well to turn stock on before it gets too high and take them off before they eat it too bare.

Q.—When can you start cutting for soiling? A.—We have cut the first week in May. Any time in May, depending on the season.

Q.—What about making it into hay? A.—The very best of hay can be made out of it if it is cut early and not left exposed to the sun. It is claimed to be worth, ton for ton, as much as wheat bran. It makes the best of feed, and all stock are fond of it.

Q.—How would you prefer to sow lucerne? A.—W. S. Fraser, Bradford. Either alone, 20 pounds to the acre, or with a thin crop.

Q.—Is it a more valuable crop than red clover? A.—It will produce more per acre, and has a higher feeding value.

Q.—Do you mean to say that a ton of well-cured lucerne is equal to a ton of bran? A.—Yes.

Q.—Is lucerne easily killed? A.—It will not stand close cropping.

Q.—On what kind of soil does alfalfa do best? A.—Dr. Henry G. Reed, Georgetown. On rich, open, deep soil, naturally drained.

Q.—Do you sow timothy for hay? A.—W. S. Fraser, Bradford. No, I have no use for it when I can get red clover.

Q.—Why? A.—Because red clover makes richer hay, will produce more in a season, and increases soil fertility, whereas timothy is very exhausting to the soil.

Q.—What mixture of clover and grass seeds would you advise a farmer to use? A.—Dr. Henry G. Reed, Georgetown. Red clover, alsike, timothy, orchard grass, tall fescue and tall oat.

Q.—What do you consider the best combination of grain to sow for a soiling crop? A.—A mixture of peas and oats or tares and oats; also mixtures of peas, oats and barley, with goose wheat.

Q.—Do you think it is necessary for a man who plows down a clover crop every year to buy any concentrated manure? A.—No. There is no cheaper manure than clover.

Q.—From a manurial standpoint, how do clover roots compare with the tops? A.—There is about as much fertilizing material in the roots of clover as in the tops, and also about as much weight to decompose.

BARN-YARD MANURE.

By E. C. Drury, Crown Hill.

One of the earliest and most largely practised of all methods of maintaining the fertility of the soil is by the use of barn-yard manure. This may be defined as the excrements of animals fed upon the farm, mixed with the refuse of farm crops, such as the straw of cereals, etc., which has been used as litter for the animals. Barn-yard manure is used very largely on almost all farms the world over, for on all farms which have advanced beyond the distinctive grain-growing stage, some animals are fed upon the farm, and the manure from them is used as a valuable means of maintaining soil fertility. Indeed, so general is the use of this manure, and so good are the results obtained from it, that there is a tendency on the part of many farmers to overestimate its virtues, and to think that the mere fact of a large part of the farm-yard manure having been excreted by animals has in some way added to the value of the manure. This idea has led to a feeling of false security on the part of many farmers, who depend almost entirely on barn-yard manure to keep up the fertility of their land, and it is important that all should understand the question thoroughly.

Under the most perfect conditions, barn-yard manure will always contain less of the elements of fertility than the foods which have produced it. This is true because certain of these elements have been extracted from the food during digestion, and retained in the bodies of the animals. For instance, a great deal of nitrogen is used by growing and fattening animals to produce lean meat; phosphoric acid to build up bone, while milch cows use both these elements largely in the production of milk. Potash is not taken from the manure to any extent by animals. Thus we see that the manure will always contain less of the elements of fertility, particularly nitrogen and phosphoric acid, than the food which produced it, and where the food used is a crop produced upon the farm, there will always be less fertility returned to the land in the manure than was taken from it in the crop. Where foods are bought and fed upon the farm, the manure may easily return more fertility than was taken from the farm in the crop. There is, then, an initial loss of fertility due to the retaining of certain fertilizing substances by the animals, and therefore, where the foods used are only those produced upon the farm, the land will gradually lose in fertility, in spite of the most careful management of the manure.

But, besides this initial loss, which cannot be prevented, there are other losses which are hard to overcome, and which may very greatly reduce the value of our manure. These losses are due to fermentation and to leaching.

Fermentation causes a loss of nitrogen and a loss in total weight of manure, but neither phosphoric acid nor potash are affected by it. Fermentation may occur either in the stable or in the heap, and is generally indicated by the smell of ammonia coming from the manure, and when it occurs in the heap, by the presence of considerable heat. We are all familiar with the smell of ammonia in stables, particularly in horse stables, in warm weather. Whenever we smell this we may be sure that our manure is losing in nitrogen, for ammonia is a compound rich in nitrogen, and one which, being gaseous, escapes and is carried off by the air. This formation of ammonia gas is caused by the action of a ferment on the nitrogen compounds in the manure, and the loss by this means

may be very great. To prevent it stables should be cleaned often, and a little dried peat or a sprinkling of land plaster among the litter may be used to absorb and retain the ammonia which is formed.

Fermentation in the heap is, however, a much more wasteful process than this milder fermentation which occurs among the damp litter in the stables. In the heap the action is violent, great heat is produced, and the pile may lose more than half its value as a result of this fermenting. To avoid this loss we should never pile the manure in large, loose heaps. Either draw it at once from the stable and spread it on the land, or spread it flat in your barn-yard and allow it to be tramped solid by your stock. In this way the air is excluded and fermentation prevented.

Another destructive fermentation known as "fire-fanging," may occur even where manure has been spread and tramped, if it becomes too dry. To prevent this we should look to the condition of moisture of our manure, particularly if it is stored in a covered shed. When it is kept in an open court the rains will usually keep it moist enough.

Besides losses by fermentation, considerable loss of all three elements of fertility—nitrogen, potash and phosphoric acid—may occur by leaching, though the loss is greatest of the soluble compounds of nitrogen and potash in the manure. The loss is often very great, and the fact that so much manure in this country is left exposed to the droppings of the eaves, and even to the action of surface drainage, would indicate that we as farmers are not sufficiently alive to the importance of the question. It is decidedly worth while to protect our manure from leaching by eave-droppings, etc. Where manure is so protected, even if exposed in an open court and also to the weather, the loss from this cause will not be very great.

We have endeavored to point out some of the losses to which manure is subject, and incidentally to show how we may escape these, but the fact to which we most wish to draw attention is this:—that these losses do occur even under the best management, and that, by them, the fertility contained in the manure is always made less than that taken from the land in the crop, where the crop constitutes the food of the farm stock. This being the case, we see that barn-yard manure alone cannot be depended upon to keep up the fertility of the land. It is a most valuable manure, and merits our most careful attention in its preservation and application, but in it only a part of the fertility removed in the crop is returned to the land. Therefore, while we still highly esteem barn-yard manure, we must, if we would maintain or increase the fertility of our soil, have recourse to other methods.

DISCUSSION.

Q.—If the barn-yard manure alone will not keep up the fertility, what other methods would you recommend? A.—E. C. Drury, Crown Hill. Good cultivation to liberate phosphoric acid and potash from the soil, where they exist in large quantities, and the use of the legumes, viz., peas and particularly clover. These plants are able to draw nitrogen from the air and leave it in the soil for the use of other crops.

Q.—What about commercial fertilizers? A.—I think them too expensive for general use here, though sometimes they might give good returns. Try a very little on a small plot first and see how it acts, before buying a large quantity.

Q.—Would lime do to use instead of land plaster to prevent loss by fermentation in the stable? A.—No, lime would only make it worse. Lime and ashes should be kept away from the manure.

Q.—You do not think it wise to rot manure? A.—No, there is too great a loss. A market gardener may find it to his advantage sometimes to produce a little quick-acting manure, but I do not think the farmer will, as a general rule.

Q.—Is it not wise to rot manure to kill weed seeds? A.—I do not think so. The loss in manure is hardly made up in the gain of killing. There is, besides, a difference of opinion as to whether the seeds are all killed by this method.

SOIL CULTIVATION.

By R. H. Field, Addison.

Primarily, soil cultivation had but one object—the preparation of a seed bed, but at the present we should cultivate for more than merely a seed bed, allowing that this object should not be lost sight of altogether.

My idea is, that, so far as practicable, we should do all our plowing in the fall of the year. The reason for this I shall try to note later. A field well plowed is half cultivated. If the plow should be thrown out of the ground because of a stone or root, the plow should be pulled back, the hindrance removed, and the furrow properly turned from one side of the field to the other. The field, having been properly plowed, the frost of winter will do a great deal toward mellowing and otherwise benefiting the conditions of the soil toward ease of cultivation in the spring.

As soon as the ground will permit of cultivation in the spring, start with a disc harrow and stir the surface of each field that is to be cropped that year. This first cultivation has at least three functions, viz.:—(a) killing a crop of weeds, (b) prevention of the evaporation of soil moisture, (c) the preparation of a seed bed and the adding of warmth to the surface of the soil. I would strongly advocate shallow cultivation in the spring. In from four to seven days cultivate again, and by so doing another crop of weeds is killed, the evaporation of soil moisture stopped, more warmth added to the surface, and the seed bed is still being prepared By three or four cultivations in this way a great many of the weeds have been destroyed in the first three inches of the surface soil, and a fine mulch prepared for a seed bed.

I would advocate rolling before sowing, as the rolling after seeding tends to form a crust on the surface, which starts capillary evaporation and a great deal of soil moisture escapes. A thorough preparation of the seed bed before the seed is sown is very essential. A light, very shallow cultivation about five days after the crop is sown, will be very beneficial in many instances, depending upon the character of the soil.

After the crop has been harvested, a cultivation with a disc harrow will start the weed seeds on the surface to germinate. These weeds should either be plowed down for a mulch or fed off by pasturing. If there should be no weeds a crop of buckwheat might be sown, to be plowed under as a fertilizer by way of adding humus to the soil. Humus in the soil increases the power of the soil to retain soil moisture, and it is of importance to us as farmers, because of the extreme droughts that we have experienced in the past.

If we have had our field under a cereal croo (except corn), the above remarks as to cultivation after the crop is harvested will apply, but as I seed in my corn for a meadow, I would not cultivate after harvest.

Having plowed my land in the fall, on which I raised oats, barley, etc., the next season I would plant to corn in rows two ways at least, 3½ feet apart each way. At the time of my last cultivation of the corn crop, about July 12, I would sow right among my corn my clover and timothy seed, giving the corn field a light cultivation to cover the clover and grass seed. If we could get a light shower of rain, our clover and grass seed would germinate very readily, and the corn will sufficiently shade the young plant to keep it from being killed by drought. This method of seeding for a meadow has proved very successful. The next season we will pretty nearly always have a good cutting of hay. The corn stubs will not interfere with cutting or gathering of the hay

crop the next season. I always practise level cultivation of my corn crop. I practise, too, putting out the barn-yard manure each day, green from the stable, on the field I intend to plant to corn.

After taking off my hay crop I would allow the after crop, chiefly clover, to grow to a nice height, then plow this clover after crop under. This will be of more value to us as dairymen than to turn in our dairy cattle and pasture it down.

This treatment of a field for three years will give you a crop—a good crop—each year, and the productiveness of our field for future crops will be greatly increased.

We must cultivate the weeds out of our farms and not allow them to seed if we ever wish to rid ourselves entirely of these numerous pests.

I have spoken of soil moisture, but this should not be confused with free water in the soil. Free water in the soil excludes the circulation of the nitrogen and other gases in the soil, and it is from these gases that the plant derives much of its food, and free water then robs the plant, so I hold that we must pay special attention to drainage of our farms. I am not going to take up the subject of tile drainage, only to say that my experience is that tiling pays every time.

To sum up, I would cultivate soil for the following objects:—(a) to prepare a nice seed bed, (b) to preserve soil moisture, (c) to eradicate weeds, (d) to warm the soil, (e) to fertilize the soil.

DISCUSSION.

Q.—Which do you prefer, deep or shallow cultivation? A.—E. C. Drury, Crown Hill. It depends on circumstances. Other things being equal, the plant grown in a soil which had been loosened to a good depth has a better chance to secure food than a plant in a shallow soil, but on poor soil, with an open subsoil, it is best to cultivate shallow, so as to keep the fertility near the surface. Stronger soils will take deeper cultivation, and in the case of heavy clays I think that fairly deep cultivation is best.

Q.—Is it advisable to roll after seeding? A.—If the land is not in a fine state of tilth it is all right, but where land is very fine I think it better not to roll, as rolling compacts the surface soil and drains the soil moisture to the surface, where it is lost by evaporation.

Q.—How would it do to roll first and harrow afterwards? A.—Very well, if the land needed the rolling.

Q.—Do you think a bare fallow enriches the soil? A.—No, it adds nothing to the fertility of the soil, but it may benefit the next crop because much plant food which already exists in the soil is made soluble and available to plants. In this way there is an apparent gain of fertility, but no real gain.

Q.—Is it advisable then to summer fallow? A.—I think not in most cases. In some particular cases it is well to do so when the object is to kill weeds which other methods will not kill, but as a means of increasing fertility it is a failure. Not only is the fertility of the soil not increased, but it may be really decreased by the loss of soluble plant food in the drainage water. A fallow is wasteful at best, but if we must have one, let us grow a green crop to plow under, if possible.

Q.—What green crop would you recommend for this purpose? A.—Clover is by all means the best, seeded the year before, plowed up in June, and cultivated as a fallow afterwards. Peas or vetches are also good, as they, like clover, drain their food from the air and enrich the soil. If we cannot grow these I would at least grow a crop of buckwheat to plow down, as this, while drawing nothing from the air, adds a good deal of humus to the soil.

Q.—What kind of rotation is best? A.—I think a rotation which aims to bring in clover in each field once in three or four years. I would make clover the basis of my rotation.

Q.—What rotation do you follow? A.—We follow a four-course rotation, as follows:

1st year, clover.

2nd year, oats, with fall cultivation.

3rd year, roots, corn and peas.

4th year, barley and wheat, seeded down.

Q.—Do you ever have trouble in getting a catch of clover? A.—Very seldom. In my section (Simcoe) we do not suffer like some sections of Ontario from drouth, and the clover catch is fairly sure. So long as the plants are there, however weak, after harvest, it is well not to be discouraged, but to give them a fair trial. Keep stock off, and you will often be surprised at the result.

Q.—Does your clover often winter kill or heave with frost? A.—Not frequently. We generally aim to have our clover go under the snow with a fair amount of top, and these leaves, I think, have quite a good effect in protecting the plants during the winter and early spring.

Q.—Do you use timothy with your clover, and how much seed of each do you use per acre? A.—We do use timothy with our clover. In seeding we use 6 lbs. red clover and 4 lbs. of timothy per acre.

Q.—What do you think of land plaster and salt applied to the land? A.—Neither of them really add to the fertility of the soil. They have a similar effect, viz.: to liberate potash from the soil. I believe both have their place. A little land plaster applied to clover will generally give good results.

Q.—Do you follow a long or a short rotation? A.—T. McMillan, Seaforth. A three-year rotation, having clover sown every third year. This rotation does not include pasture, unless you wish to pasture the first year after seeding, from which I have good results.

Q.—What is your course of rotation? A.—First year, clover; second year, corn or peas, roots or potatoes; third year, sown with grains or re-seeded.

Q.—Do you approve of sowing clover seed upon all your grain fields, even if you intend plowing it down in the fall? A.—Yes. This is the most profitable system of procedure a farmer can follow. More fertility will be added by allowing clover to grow on till the late fall, rather than having the land bare from harvest till winter.

Q.—When do you apply the manure? A.—During the winter, after the clover has been plowed in the fall. I haul it directly from the stables and apply it to the land.

Q.—Is there any waste by applying manure in this way? A.—None by evaporation and very little by washing, even on comparatively rolling fields.

Q.—How do you work the land in the spring after it has been manured? We cut all the straw used for bedding, and in the spring work the manure into the surface soil with the iron harrow and the spade harrow.

Q.—After removing the corn and root crops, do you plow the land? A.—No, we only plow once in the three years. It is a mistake to bury the surface soil in which you have been working, during the time the corn and root crops are being cultivated, as that surface soil is clean of weeds and is the best portion of the soil for receiving the seed.

Q.—What is the best requirement toward thorough cultivation? A.—Thorough underdrainage whenever our lands require it.

Q.—How deep would you drain land? A.—On deep soils or on clay soils where the crabs work, put drains two and one-half or three feet deep. On heavy clay soil, with stiff clay subsoil, if the top of the tile is twenty inches below the surface they are deep enough.

Q.—Do you drain land? A.—This is a deep question, and if farmers would study the why for everything done on the farm we would be a more intelligent class than we are to-day. In answering we must first realize that our soil is simply a great laboratory in which its different elements are, during the period of growth, constantly being made soluble and thus prepared for the food of plants. This preparation is brought about by the action of air, moisture, heat and manure, and is induced mainly by the action of the oxygen of the air getting in and through the soil and coming in contact with its various particles, and requires for its proper action a soil which is porous, warm and moist. Water is a poor conductor of heat, so water-logged soils are cold. The presence of an oversurplus of water excludes the air, prevents all healthy chemical action, and as a consequence plants become stunted and die. For this reason we must get rid of this oversurplus of water, and in doing so imitate the example of the best of soils, which are underlain by an open porous subsoil and withdraw the water from beneath.

Q.—Do you approve of deep plowing? A.—Not more than five or six inches in deep soils. If you wish to go deeper, do the work with a grubber or subsoil plow, but do not bring the subsoil to the surface.

Q.—Does it pay to buy artificial fertilizers and put them upon our grain or root crops? A.—T. McMillan, Seaforth. By carefully conducted experiments carried on at the Guelph College and elsewhere the only crop which has paid for buying the fertilizer has been when nitrate of soda was sown upon mangolds, at the rate of 160 pounds per acre.

MANURE.

Farm-yard Manure—Its Value as a Plant Food, and How Best to Apply it to Retain Soil Moisture.

By J. W. Clark, Onondaga.

Few farmers ever stop to think of the difference in value of the liquid and solid parts of our stable manures, and many a one is allowing the most valuable parts to be leached out and wasted away, without ever stopping to realize the loss they are sustaining. Nitrogen and potash, which are the most valuable to the farmer, are in greater quantities in the liquid parts. The following table taken from Bulletin 109, issued by Prof. Day, of the Agricultural College, Guelph, clearly shows us the importance of absorbing every particle of the liquid portion and getting it on our land in the best shape possible, without allowing it to be washed out in the yard.

Name.	Nitrogen. Per cent.	Potash. Per cent.	Phosphoric acid. Per cent.
Cattle excrement, solid	.29	.10	.17
" liquid	.58	.49	..
Horse excrement, solid	.44	.35	.17
" liquid	1.55	1.50	..
Sheep excrement, solid	.55	.15	.31
" liquid	1.95	2.26	.01
Swine excrement, solid	.60	.13	.41
" liquid	.43	.83	.07

This table clearly shows that the liquid parts of all animals except swine is richer in nitrogen and potash by from two to fifteen times as much as solids. Farmers should provide plenty of cut straw or chaff to place in the stable behind the cattle to absorb every particle of the liquid. Straw alone will not answer nearly so well. Many farmers are cutting all their straw and bedding in that form, and it will pay any farmer well, as it means less handling, not being so bulky, and it can be spread on the top of the

plowed ground and worked in with the seed. By applying manure in that manner you can haul out any time where the snow is not too deep and spread on top. I have found where it has been applied on deep snow we sometimes get a heavy rain, and a greater portion of the liquid part is washed out and runs down the furrow to the ravine or creek and is lost.

Some practise putting the manure in large heaps, while others put in small ones. If your manure is frozen somewhat, the larger heaps are best, as they will not thaw out sufficiently to ferment much, and can be drawn and spread as soon as the land is dry in the spring. I practise hauling out manure just as the fields commence to get bare in the spring, putting it in small heaps, and spreading it as soon as the snow is gone.

By top-dressing your plowed land, and working the manure in with the seed, the plants have the assistance just at a time when they require it most, to help the small plants to get a start. Most of our cereal grain crops are shallow rooted, and if manure is plowed down, six or seven inches, they do not reach it, and if they did, it would be too late to ensure a good crop. Many of our grain crops are forced at a wrong time, which causes growth at a time when the crop should be getting ripe, hence we get a blighted and rusted crop. Another benefit derived by applying it on top and working it in with the seed is, that it acts as a mulch keeping the soil open and preventing baking on the clay. Crops will make rapid growth in the dryest seasons when treated with a top-dressing of stable manure. It will also ensure a sure catch of clover seeds.

DISCUSSION.

Q.—Which is of the most value as plant food, liquid or solid manure? A.—J. W. Clark, Onondaga. The liquid part is of far the most value, both in nitrogen and potash.

Q.—What is the best way to apply manure to the soil in order to get all of its plant food? A.—By spreading on the surface and working into the soil. Our cereal grain crops are shallow feeders, and we want to force them as soon as they germinate to get an early crop. If plowed down, the liquid part is very apt to soak down out of reach of grain roots.

Q.—Will manure keep clay from drying out in hot weather? A.—If applied on the surface it acts as a mulch and keeps the soil open, preventing clay soil from baking and allowing the moisture to evaporate.

Q.—Have you observed in feeding bran that there is as much value in the manure as $8.12 per ton worth of plant food? A.—T. G. Raynor, Rose Hall. I believe it is the experience of all who have fed bran to any extent that the manure is very rich in plant food, if both the liquid and solid parts are saved. Only a chemical analysis by an expert could determine the exact amount.

Q.—Which would pay better, to buy special fertilizers to improve the fertility of the soil, or concentrated foods to feed stock? A.—I believe it would pay better to buy concentrated foods, such as cotton seed meal, oil meal, gluten meal, and wheat bran, and feed them to stock.

Q.—Is there no dust on your hay when you put it in so green? A.—Very little, if it is cured in its own sap. I would expect mouldy and dusty hay if it were put in green with dew or rain upon it.

Q.—Would you not favor top-dressing a meadow with your manure? A.—I believe it to be a very good practice where it is thought necessary. If the manure is strawy, however, and the meadow is mown for hay, considerable amounts of the dry straw will be raked up with the hay.

Q.—Can you feed shorts with bran? A.—Yes, but I should not buy them to feed together. Bran is better for stock, while shorts are better for pigs.

FEEDS AND FEEDING.

By T. G. Raynor, Rose Hall.

The value of food depends upon three things: (1) its digestibility, (2) its composition, and (3) its manurial value. The digestibility of a food is influenced by the way it is prepared. The fodder kinds are the kinds most affected in this way. For instance, the following may be considered the best method of handling clover: As soon as the clover is in full bloom, cut with the mower when the dew is off or nearly so until noon. If a heavy crop, use the hay tedder to help wilt it enough that it may be raked up towards evening. If the ground is dry and the weather good there will be no trouble to cure it enough. Put this up in medium-sized coils and leave it for two or three days to sweat out. Then, an hour or so before housing, open it out in two or three bunches and then haul to the mow. If the weather is good the hay may be left in the winrow over night, and after the dew is off next morning shake the hay out some, where greenest, and haul it in, in the afternoon. On every layer sprinkle over some salt or air-slacked lime. The salt seems to preserve the hay, while the lime has a drying action, and neither are injurious to stock if only small quantities of the material are used. Others put the hay up in coils the first afternoon, and after the dew is off next day spread and cure it for hauling in during the afternoon, and treat as above. Others, again, leave the hay until about one-third of the heads have turned brown. Then cutting is done after the dew is off in the morning, and by using the hay tedder it is hauled in in the afternoon and keeps all right. In all the above methods we are aiming to cure the hay in its own sap and free from any outside moisture of dew or rain, which would spoil the hay by making it mouldy and dusty.

Hay suffers in digestibility as it passes the blooming stage, woody fibre being then formed. Hay exposed to a dew when half or more cured is made very poor in digestibility by the action of the sun next day in steeping out the strength as the dew evaporates. A great many heads and leaves are also left on the field if the crop is over-mature when cut.

When timothy and clover are grown together for hay, I would cut the timothy before it blossomed at all, in order to get the clover about right. If timothy alone I would cut when between the two blows. Mixed hay should be cut when the predominating grass reaches the blooming stage.

All straw used for fodder is of higher feeding value when the crop is cut on the green side.

Mixed grains are grown with great advantage both for cutting green and for threshing out. In sowing mixtures I would endeavor to choose varieties which would mature about the same time. This would prevent waste in shelling out. Grains may be cut on the green side and still have sufficient nutriment in the stem and leaf to mature the grain properly.

Corn to be at its best for feeding should be grown in hills or in drills sufficiently wide apart between the rows and the plants in the rows so that ears will have a good chance to form. Then cut it when the corn has reached the glazed condition and it is best for silo purposes, as well as for husking. Pea straw, if cut green and properly cured, is of much higher feeding value than is allowed for it.

The value of a food depends in the second place on its composition. All foods contain more or less of the following nutrients, viz., water, protein, carbohydrates, fat and in addition to these some mineral matter which enters into the formation of bone.

The water found in combination serves a better purpose in the food than if animals had to depend on outside sources for it. Succulence in the food materially aids animals in digesting roughage.

Protein or flesh formers of the food contribute to make muscle or lean meat, blood and milk. In some cases protein may be used for production of heat and fat. The carbohydrates make fat and heat, and are the starch and sugar of foods, while the fat of a food also makes heat and fat, but is two and one-quarter times as strong as are the carbohydrates. The carbohydrates and fats are spoken of as being the heat, work and fat producers. From neither of these nutrients can muscle, blood or milk be formed.

All foods fed to animals have a certain percentage digestibility of the above nutrients which are sufficiently accurate for all practical purposes. In such works as Prof Henry's "Feeds and Feeding" we have these analyses given, and with the "know how" which may be easily obtained by any feeder, he can sit down and with pencil and paper work out a balanced ration suited to his animals and the kind of foods he has at his disposal. The average farmer pays very little attention to this important feature.

The skilful feeder should take into consideration the age of his animals. To young, growing stock he must compound a ration from bone and muscle-forming foods. Such foods are skim milk, clover roots, bran, shorts, oil meal, gluten meal, pea meal and oats. Bran, oats, oil meal and skim milk, with, of course, grass in its season, are very important for growing stock, owing to their large percentage of ash constituents, which go to make up the bone. Corn in any form is a very poor food for such a purpose.

For young stock a nutritive ratio of 1 to 3 or 4 is desirable, while for feeding for milk or a large deposition of lean meat a N. R. of 1-5.5, or 1-6 is desirable, i.e., 1 of digestible protein to 6 of carbohydrates in which the fat has been reduced to the carbohydrate equivalent. Matured animals at rest only want food as a maintenance diet, or 1-14. Individuality is another important consideration as well as climate, exercise, digestibility of foods, variety, regularity, succulence and palatability.

The fertility of the soil depends upon the presence of three very important elements, viz., nitrogen, phosphoric acid and potash, which have a commercial value of 14c per lb. for nitrogen, 5c per lb. for phosphoric acid and 4c. per lb. for potash. Farm yard manure contains all the ingredients if both the liquid and solid manure is preserved, and if it reaches the soil before it is heated or washed too much.

Those foods richest in protein are the best foods from which to make manure. Such foods as cotton seed meal, oil meal, bran, shorts, pea meal, oats, clover, etc., are far better than corn, corn fodder, timothy, straw, rye, barley and even wheat. Great importance is attached to the liquid manure, where most of the nitrogen and potash is found.

FODDER CROPS.

By W. S. Fraser, Bradford.

A large portion of all our crops is now used for feeding stock. This is true to a greater extent than it was in former days for the reason that the price of grain and hay is lower than it was years ago, and the price of stock higher; consequently the bacon hog, beef cattle, well-matured horses and dairy products are the medium through which most of our products are marketed. This means better farming, more skill and labor required to run a farm, and ensures better land fertility. I do not purpose to discuss all the crops which we use as feed, but will deal with some of them only.

Indian Corn. Among the crops cultivated most for feed this is the largest, and when properly cared for will produce from 15 to 20 tons of good fodder per acre. The quantity and quality depend largely upon the amount of cultivation we give it. This is one of the crops a farmer has under his control, to a great extent, particularly when the season is dry, when by judicious and frequent cultivation we conserve soil moisture.

Grasses and Clovers. We are told there are 300 different kinds of grasses, many

of which are unknown to us, and of little or no value to the farmer. Some of our grasses are valuable as pasture and not so valuable for hay—June grass, for instance—while others are more valuable for hay than pasture, such as timothy.

The value of grasses is dependent upon their productiveness, hardiness, richness in flesh-producing qualities, palatability and their effect upon the soil. The number of grasses in general use by farmers are few. Prominent among the new ones now being introduced is Awnless Brome, from the North West, where it has produced four tons of hay per acre. It is a strongly-rooted perennial, producing hay of good feeding quality. It gives a good aftermath, which is much relished by stock. It is now being experimented with both at Guelph and Ottawa, and we may expect soon to know definitely its possibilities in Ontario.

Orchard Grass. A vigorous growing perennial; starts early and grows continuously throughout the season; is valuable as a pasture plant. Those who lay down land to permanent pasture should give it a prominent place in the mixture. For hay it must be cut early or it becomes hard and woody. This is true of all grasses that if cut at the early flowering stage their feeding value is much higher. As the plant approaches maturity the albuminoids and fats decrease, the fibre increases and it becomes more indigestible.

Fescues. The tall and meadow fescues are valuable for permanent pasture. They are early grasses and continue to grow late in the season and are very suitable for high lands. For low marsh lands Blue Joint is very suitable. It is a heavy cropper and relished by stock. The stems remain green after the seed is ripened.

Wild Timothy. A hardy grass which is also recommended for low lands which are too wet for cultivation.

Timothy. The best known of all our grasses and occupies a more prominent place than it deserves. It is more valuable for hay than as a pasture plant. Its feeding value as hay is not so great as well-cured clover. It is exhaustive to the soil. Two tons of timothy hay will take nearly as much nitrogen from the soil as a crop of oats, 50 bushels to the acre, and a crop of barley, 35 bushels to the acre. It takes more phosphoric acid and twice as much potash as both these crops. In the early days, when the land was rich and covered with stumps, it served a good purpose, as it remained long in the land, producing good crops, and in many instances brought good prices, but under the changed conditions of the present it does not rank a good third as a profitable hay or pasture crop. In fact, I believe we can do well without it on our farms.

Clovers. We have several kinds of clover, all of which are valuable. The large Mammoth Red grows the largest tonnage of hay per acre. It is later in maturing than the small red, and does not give as good an after growth.

Small Red is most common, and many farmers do not realize its value. It stands preeminently as a nitrogen gatherer and land improver. The fertility added to the soil by growing clover one season is estimated to equal fifteen loads of barn-yard manure per acre. Its roots have been found to penetrate to the depth of four feet, which tends to render the subsoil more porous. The crop should be cut when one-third of the heads have commenced to turn brown, and when properly cured it makes hay of very high feeding value. Horses require less grain when fed good clover hay than if fed timothy. Care should be taken to limit the quantity fed to horses, as they will eat more of it than is good for them when at hard work. Red clover is a biennial, and cannot be depended on for more than one season.

Lucerne or Alfalfa. This is a large-rooted perennial clover; grows rapidly, producing three crops of hay, amounting to from five to seven tons per acre in one season. It is most valuable for feeding stock, either as a soiling crop or hay for pasture. For hay it should be cut when one-eighth in bloom. Never cut when wet from either dew or

rain. Coil the same day. When properly cured, it is very rich in flesh-forming qualities, accordingly its feeding value is equal to wheat bran. Some hold that it equals in feeding value pound for pound with bran, while others are inclined to deduct somewhat from it for the reason that it will require more energy to digest it, and another authority detracts somewhat from it for the reason that it is more bulky. Notwithstanding these objections, it is evident that it is the most valuable plant we can grow for stock feeding. Farmers should certainly make a great effort to establish it on their farms. To ensure success it is perhaps better to sow it alone, 15 to 20 lbs. of seed per acre (although I have had it succeed well when sown with barley). It grows continuously throughout the dry season, and when once established will continue for years, if not pastured too closely.

Hairy Vetch. A winter annual; a rapid grower; rich in flesh-forming properties; valuable for soiling or hay pasture; will do well when sown in the spring, but better if sown in early September for the following year's use.

Millets. A quick-growing annual; valuable as a catch crop; may be sown in June. It produces large stem and leaf growth; if cut when seed is forming makes good hay. If left for seed it will produce from 30 to 50 bushels per acre. The Japanese varieties are decidedly the most profitable to grow.

Farmers should study closely their conditions and the different kinds of grains and fodder crops which are obtainable, not relying upon flaming advertisements, which each year appear in our papers and catalogues of seed, but depending rather upon reports from our experimental stations, which are the results of repeated trials under varied conditions, carefully carried on by men who know, and are not interested in booming any particular kind of grain. In this way we may be able to select kinds that will do much better for us and increase our profits and the wealth of our country, ever remembering that low-grade seed containing weed seeds is dear at any price and should never be sown.

DISCUSSION.

Q.—How would you kill couch grass? A.—W. S. Fraser, Bradford. By frequent cultivation early in the season, then sowing thickly with buckweat. When well grown plow under and sow again with buckwheat. Thus you get rid of the couch grass and add humus to the soil.

Q.—Is the plant food always near the top? A.—Plant food is one foot deep.

Q.—Would it not be better to bring clay up in sandy soil? A.—There is always more plant food in clay than in sandy soil.

Q.—In plowing sod, would you plow deep or shallow? A.—Plow shallow.

Q.—Can you get the land too fine to get a stiff straw? A.—The finer the land the better the mechanical condition and the more plant food available.

Q.—About how deep would you work it fine? A.—Three or four inches in spring.

Q.—How far apart would you put the under drains? A.—That depends on the soil.

Q.—Will tile drains work that are not under the frost line? A.—Yes; I have a tile drain working for years that is not 15 inches under the ground.

Q.—How should the land be prepared for mangels and sugar beets? A.—G. C. Caston, Craighurst. The land should be manured in the fall if possible, the manure plowed in not too deep, and the land top-worked with a disc and smoothly harrowed. If you have not the manure in the fall, then apply it as early as possible in the spring. Plow it in and top work and then leave it until grain seeding is done. Then sow about three hundred pounds of salt to the acre, harrow and make into drills.

Q.—Do you prefer drills to sowing on the level? A.—Yes, I do. I always like to have a drill, not too high, for by planting in this way you can set your scuffler to go

very close to the plants, thus drawing the weeds to the centre and giving you a better chance for thinning.

Q.—Does it pay to sow the salt on the mangel ground? A.—In my experience I have found that it does.

Q.—What effect does the salt have on the land? A.—Well, salt is not itself a plant food, but it has a mechanical effect in setting free plant food, so that the plants can take it up, and it attracts moisture and holds it during the critical period of summer drought.

Q.—What varieties of roots do you prefer? A.—The Giant, Yellow, Intermediate Mangel and the Danish Sugar Beet. I prefer the latter for milch cows and hogs, as they really solve the problem of profitable hog feeding in winter.

Q.—Will not the moisture escape more rapidly from a rough surface than from a smooth one? A.—A. E. Sherrington, Walkerton. Yes, certainly. The seed bed should be as fine as possible.

Q.—Do you practise harrowing fall wheat in the spring? A.—Fall wheat is frequently improved by a light harrowing.

Q.—Is deep or shallow cultivation best for spring crops? A.—All crops are better for shallow cultivation in the spring.

Q.—In plowing clover sod for fall wheat, do you find any difficulty in getting a stand of wheat? A.—No, providing the sod is well rotted and the soil well compacted.

Q.—Is anything lost by allowing the manure to rot? A.—The manure is never better than when put on the land fresh from the stable.

Q.—Do not the rain, air and cultivation dissolve plant food? A.—Yes. The better the physical condition of the soil, the more available will be the plant food for the growing crop.

Q.—Would you recommend both fall and spring plowing? A.—No. Plow in the fall, and work a fine, shallow seed-bed in the spring.

Q.—Is there any danger of clover getting too much top in the fall? A.—No, very seldom.

Q.—Will not alfalfa last longer than red clover? A.—Yes. It takes alfalfa two to three years to become well established.

Q.—In breaking up a clover sod, when would you plow it? A.—In the fall, turning under the after growth.

Q.—What method would you employ to rid a field of weeds? A.—Plow shallow immediately after harvest, and harrow well; then plow late in the fall, and follow with a hoe crop the next summer.

Q.—What method do you adopt in preparing the ground for mangels? A.—If you are not following a system of rotation, you should choose the poorest and dirtiest field; cultivate shallow after harvest; plow a fair depth late in the fall; apply the manure during the winter; spread it evenly over the surface, and then work it into the soil in the spring with the plow or disc harrow.

Q.—Do you sow turnip seed deep? A.—No. From half to three-quarters of an inch.

Q.—What grain crop would you sow after roots? A.—Barley, and seed with clover.

Q.—Do you plow the root ground in the fall? A.—No, it is better to leave it and work up a seed bed in the spring.

Q.—Why? A.—Because if you plow it, the fertile soil will be buried beyond the reach of the plants.

Q.—Do you prefer applying the manure in the winter or spring? A.—I prefer the winter.

Q.—Why? A.—We have more time at our command in winter.

Q.—Which are the hardest on the soil, turnips or mangels? A.—I think mangels are a little harder on the soil.

Q.—How deep would you plow an old June-grass sod? A.—T. G. Raynor, Rose Hall. I would be inclined to plow it very shallow so as to expose the roots to the hot, drying sun.

Q.—How much plaster do you sow per acre on young clover? A.—From 50 to 100 pounds.

Q.—How do you apply wood ashes? A.—Alone, and about half a bushel to an apple tree of bearing age. Locally if applied to a corn hill.

Q.—What would you apply to lawns? A.—Good, well-rotted farm manure is all right. Special fertilizers may also be used.

Q.—What do you think of sowing clover seed in the fall? A.—I have seen some good catches where sown at last cultivating of the corn. I believe it would do well if sown alone in the fall on a good seed bed.

Q.—Have you used salt or lime in preserving hay? A.—I have used salt with good success. A pailful should do two loads.

Q.—Is salt good for soil where grass seeds are sown? A.—Yes, it would be all right to apply it under such conditions, as it would aid in freeing plant food.

Q.—How do you apply manure? A.—I prefer to apply it as a top-dressing fresh as it is made in the winter time. There are various methods practised which are good, but the way that will give us the most complete returns with the least labor is, to my mind, the best, and that is the one outlined.

Q.—What would you do with wood ashes? A.—I would use them in the orchard and in the fruit and vegetable garden.

Q.—Is it possible for wheat to grow chess? A.—Andrew Elliott, Galt. No, chess will only come from chess. Chess belongs to an entirely different family.

Q.—How would you get rid of couch grass? A.—Buckwheat is one of the best crops to sow on land infested with quack. Plow down the first crop and harvest the second.

Q.—Are wood ashes of any value as a fertilizer? A.—Yes, to fruit trees and meadows. They should not be mixed with farm-yard manure.

Q.—Does it pay to cut straw? A.—Yes, it enables us to form a ration in better shape, rendering roughage more palatable.

Q.—Does it pay to grind grain? A.—Yes. As a rule, it aids in the digestibility of the food.

SELECTION AND CARE OF SEEDS.

By J. S. Pearce, London.

The proper selection and care of seeds by every farmer is a most important matter, and one which does not receive the care and attention that it should.

There are several points in the selection of seeds that are so simple and easily done or attended to, and that will bring the farmer good returns for his time and trouble, that they should not be overlooked by any farmer. The first of these is clean seed. What I mean by this is seed that is free from foul seeds. In order to secure clean seed one must have a good fanning mill, for it matters not how clean the farm is, there are sure to be some weed seeds in the grain. The most important matter is screening the seed grain thoroughly and taking out at least one-quarter to one-third, and in some instances one-half will do no harm, but rather good.

A Director of one of the Experiment Stations in the United States writes that he has made a practice of screening out from one-third to one-half of all seed grains,

before sowing, with very marked results, and that he has raised the yield per acre from ten to fifteen bushels. A farmer in the State of Iowa, who grows annually some two thousand acres of oats, writes a leading agricultural paper that he has raised the yield of his crop of oats from forty-five to fifty-five bushels per acre, up to sixty-five to seventy-five bushels per acre, by careful selection of his seed and by thorough screening, taking out not less than one-third. I met a farmer at one of our Institute meetings this winter who told me that he had the same variety of peas on his farm for the past eighteen years; that they were a larger sample and better yielder than when he got them, and this had been done by hand screening. His practice was to screen out with the hand sieve at leisure times during the winter sufficient of the seed for seeding the following spring, taking only the large ones, sometimes getting or taking only one bushel in five. The importance of this was very forcibly illustrated by Prof. Zavitz some years ago, by an experiment which was conducted by a division of some samples of peas, barley and oats, separating the small and broken grains, then the smaller and then the medium, then the large, plump grains, making in this way four divisions. These were planted and carefully tended, and when well up in head, or when about ripe, selections were taken up and photographed. This was a grand object lesson, and those who saw these grains were very forcibly impressed.

The yield and earliness of the crop may be very much increased by a selection of say fifteen or twenty stooks, at the time of cutting, in the earliest portion of the field. Draw these in separately and thresh with a flail, screening well and sowing in a favorable part of your field next year. Another important and most efficacious method in the selection of seeds is hand-picking. I would strongly advise any farmer to try this for a few years, and, if he will do the work thoroughly, he will be handsomely rewarded for his time and trouble, but it must be done very, very carefully. The results of following this method have been forcibly illustrated in the Macdonald seed competition, conducted during the past three years. The results have shown an increase of yield in these three years of ten, fifteen, and as high as twenty-five bushels per acre among some of the competitors. I met the winner of the fourth prize in oats for last year, at an Institute meeting this winter, and he told me that the best head of oats the first year contained one hundred and seventy-three grains; the second year, two hundred and twelve; the third year, two hundred and eighty grains. This shows most forcibly the value and importance of hand picking. Here we have a gain of 33 per cent. for the third year over the first. This, if followed up judiciouly for a number of years, would mean seed breeding. There is in the State of Illinois a "Seed-corn Breeders' Association," and they have accomplished very much. They are realizing fancy prices for their seed corn, and a perfect ear scoring one hundred points is worth five dollars.

Now, here is a thought or suggestion: If any of your boys or girls have a taste for this work, take them into your confidence, and pay them a good price for three, four or five bushels of carefully-selected and hand-picked seeds. This will interest them and be the means of developing some latent talent.

As full particulars of how to carry out and follow up this work would be too lengthy for this paper, I shall be only too glad to write, with full directions, to any one wishing information, if they will address me, enclosing a stamp for reply. This is a most important matter, and I feel that I cannot too strongly urge it upon the attention of our farmers. Think what it would mean to the farmers of Ontario if the yield of all their field crops were increased one-fourth. This would be equivalent to adding over $25,000,000 to the value of the annual yield of the farms of the Province.

We now come to the question of the selecting and purchase of grass seeds, such as Clover, Timothy, Oat Grass, Red Top, etc. The purchasing and sowing of these are,

in my opinion, the principal mediums of distributing weed seeds. Farmers have no idea of the amount of filth many of them have been sowing with their grass seed; many through want of care, and others as a matter of economy, because they thought they were getting cheap seed. The chart supplied by the Government to the Institute speakers during the past winter was a surprise and an "eye-opener" to very many farmers, and many told me afterwards that they were through buying dirty and cheap seed. Buy the best seed you can get, and if you have to pay three or even five cents per pound extra for it, you are then getting cheaper seed than a great many farmers have paid for such samples as shown on the chart, for besides they get thousands and often tens of thousands of weed seeds to the pound. Below are a few samples of clovers, as analyzed under the direction of the Department of Agriculture at Ottawa.

RED CLOVER.

—	Price.	Per cent. of pure seeds.	Cost of pure vital seed per bushel.	No. weed seed per pound.
	$ c.		$ c.	
Barrie	7 20	90	8 00	1,170
Hamilton	5 50	86	6 40	5,715
Brantford	5 25	72	7 29	15,005
Galt	5 90	90	6 94	5,985

ALSIKE CLOVER.

Barrie	7 20	78	9 37	2,718
Galt	9 00	62	14 51	23,556
Hamilton	8 50	65	13 07	1,993
Brantford	8 00	48	16 66	49,830

A glance at the above figures will quickly show any one how foolish he would be in buying such samples as shown above. For instance, the Red Clover sample procured at Brantford at $5.25, with only 72 per cent. of pure, vital seed, in reality costs the farmer who bought it at the rate of $7.29 per bushel, and he got besides 13,005 weed seeds to the pound into the bargain. Is it any wonder that farmers who buy such seed have dirty farms?

The number of weed seeds in some of the samples may seem very large, but it must be remembered that there are 350,000 seeds of clover, 700,000 seeds of alsike and 1,350,000 timothy seeds to the pound. No doubt many farmers often blame the merchant or country storekeeper, who may handle the seeds, for supplying them with such inferior and filthy seed, but he, being only interested in their sale, of course buys what he thinks will sell and make him the most money. Besides, the farmer should know clean seed when he sees it, but, unfortunately, he too often drives a hard bargain with the merchant and wants it cheap. I am sure that there is no article that a farmer buys, about which he should question the price as little as his seeds. It should be a question of quality; pay a good price and insist on the quality being A1 in every instance. No doubt many will say "How am I to get clean seed?" To this I would say—buy by sample only; send to some good, reliable seed house for samples and quotations, and then order what you want by these samples, instructing the seed merchant to ship you as "per samples and quotations enclosed." Keep these samples, and when your order comes, see that the shipment is the same as the sample. If it is not, you are not obliged to accept it. Another very important thing is to order your seeds early, and you will get better seeds, and your order will be more likely to come correctly filled. Order your seeds early, even if you have to borrow the money to pay for them. My

twenty years' of experience in the seed business justifies me in urging the above very strongly.

Another point in connection with the buying of seeds is that good, pure and true seeds cannot always be judged by appearance, size, weight or color, although these requisites are most essential to a handsome sample. I now refer to root and vegetable seeds more particularly. It is not only necessary that you should have in these a strong, vigorous type of seed, with good germinating power, but that you should also have a seed that will produce a true type of the variety it is supposed to represent. A pure, true seed is one that will produce a strong, healthy, typical plant, and to do this the seed must have been produced by just such a true type of the variety that it represents. That "like produces like and blood will tell" is just as true in the breeding or growing of seed as in that of animals. Few farmers have any idea of the source of the root seeds which they buy annually, nor how they are grown, especially the cheaper grades. If they knew more about this, they would be more careful when making their purchases. Too many farmers seem to have but one object in view when buying seeds, viz.—to buy as cheaply as possible. As a matter of fact, English gardeners and farmers pay much higher prices for their seeds in England than do our gardeners and farmers in Canada. Some of the best seed houses in England, who have the best retail trade, charge as much wholesale in England as our farmers pay retail here.

Our supplies of foreign-grown seeds are bought and imported principally by the larger seed firms. They make their purchases either by paying a commensurate price to reliable English or European seed growers; men who grow seed from reliable, pedigreed stock. (In this case it will be a question of quality, not price). Again, they may, and can, buy seed at a much lower price; seed that is grown by men whose chief aim has been to produce a large quantity of cheap seed, independent of the quality of the crop it will produce. In the former case the seed is grown from carefully-selected plants or roots, which have an "ideal" size and form, and are known to be true to type and name. For instance, an "ideal" turnip is one having a small neck and top growth. Such a root when planted will produce a comparatively small growth of stalks, and consequently a small amount of seed, but the seed from such a root will produce a crop like the mother root, which was grown from selected, pure-bred stock seed. On the other hand, a small turnip, having several root prongs and an excessive growth of top, coming from two or three separate neck growths, or a long neck, will transmit its like through the seed to the crop. Seed can be grown from such roots very much more cheaply than from selected roots, because in the first place the mother roots are small or culls, and are grown much more cheaply, and secondly, they will produce a much larger quantity of seed. The seed merchant who buys such seed takes into account the price, not the quality.

Unfortunately, fair competition in the seed trade is practically impossible, since the appearance of most commercial seeds is but a slight indication of their real value. Competition has been, and is, largely confined to price alone. Farmers contrive to patronize the local dealer who is able to quote a low price for his seeds; the local dealer demands a low-priced seed from the wholesale firms, and they in turn, to meet this demand and competition, have been bringing cheap goods into the country, with which to supply the local dealers.

It would pay any farmer to grow his own turnip seed, as well as his mangel seed, and such seed grown from carefully-selected "ideal" roots would be cheap at one dollar per pound, compared with the average seed as supplied to farmers by local dealers. I could go on and give my readers particulars how to grow their own seeds and other information, but the paper is already too long; in fact, the seed question is too important, and covers too much ground, to be treated fully in an ordinary paper.

DISCUSSION.

Q.—How many pounds of clover seed do you advise to sow per acre? A.—J. S. Pearce, London. If sown alone, not less than twelve to fifteen pounds, if with timothy about eight or ten pounds of clover and from four to six of timothy.

Q.—Where can you get good, clean seed? A.—You can get good, clean seed from any reliable seedsman, but buy by sample and quotations, by first writing for samples and quotations, and then see that the seed sent is up to sample.

Q.—At what age would clover seed loose its vitality? A.—If it is kept in a cool, dark room it will keep for several years.

Q.—Can we improve our seeds by changing? A.—Most decidedly, but change from sandy or loamy land to heavy clay, or vice versa, but do not change unless you are sure you are getting the same variety or something better.

Q.—How closely would you screen seed grain, or what percentage would you screen out? A.—Not less than one-quarter, or in some samples even one-half.

Q.—How do so many of our root seeds get mixed? A.—By careless country merchants who are not careful in keeping their stocks correctly labelled.

Q.—Can we grow our root seeds with profit, and how? A.—Any one can grow their own turnip seed, and such seed, if grown carefully, will be well worth one dollar per pound.

Q.—Why do we get necky turnips? A.—Because the seed has not been grown from pure stock, and the roots have not been carefully selected.

Q.—Can you grow the same variety of seed for years without it running out? A.—Yes, by careful selection, hand picking and thorough screening, and by taking out at least one-quarter before sowing.

Q.—How can grain be got to ripen earlier? A.—By selecting and picking the ripest and earliest heads.

Q.—How can we prevent rust on straw? A.—Rust is the result of too much moisture and excessive growth of the leaf and straw, making too much sap, which bursts the sap cells.

Q.—How can we kill smut on grain? A.—By treating the seed with bluestone or other chemicals.

Q.—Will the small, inferior grain grow as strong and vigorous plants as the large ones? A.—No, by no means.

Q.—How would you secure good, reliable clover seed? A.—G. H. Hutton, Easton's Corners. Ask your agent to buy a bag of good, reliable export seed for a number of your neighbors and yourself; do not hamper him in price and you will get it.

Q.—When would you sow clover and timothy seed? A.—About July 10-20, in my corn field, just before the last cultivation. I find this plan successful.

Q.—In what proportion do you sow? A.—That depends on what kind of a hay crop you want. If for cattle, I sow two parts clover to one part timothy, by weight.

POINTERS FOR GROWING CORN FOR GRAIN OR THE SILO.

By Robert Thompson, St. Catharines.

An erroneous opinion is widespread among those who have silos, not only in the counties where corn is grown for ensilage, but where it is grown for the grain, that it is better to grow varieties producing large yields of immature stalks, and to grow corn closer in the rows and more in the hills, or row, so as to have a greater bulk. As a result there is a large proportion of the ensilage of a very poor quality, and not giving as good results as it should.

There are many of the best farmers, and the number is steadily increasing, who believe that it is better to grow the varieties of corn that will mature, even if only producing a gross yield of from twelve to fifteen tons per acre, of which there will be about three tons of well-filled ears, rather than varieties producing from fifteen to twenty tons of immature stalks on which are only about two tons of soft and partially filled ears. Mr. R. B. McLean of Kippen and Mr. Ketchen of Brucefield are two of those who can be taken as models in growing corn for ensilage in the County of Huron; even during the past season they have been able to secure good ensilage by proper cultivation and the growing of early-maturing varieties.

The first point in growing corn is to secure a good seed bed rather than to try and get the corn in the ground too early. It is better to prepare the land a week or two previous and give extra cultivation, thereby warming up the soil so that the seed will germinate quickly and grow rapidly from the start. I find many who say that they plant their corn early and expect to have it nipped by the frost after it comes up. I do not wonder that they grow poor, uneven corn. Corn is a rapid-growing plant, requiring plenty of heat, sunlight and cultivation; varieties can be grown that will be ready to cut for the grain or the silo in from ninety to one hundred days from the time of planting, if the soil is well prepared and proper cultivation given later, so that even in Perth or Huron Counties corn can safely be planted during the last ten days of May and still have plenty of time to mature before the danger of fall frosts.

The next point is securing good, vigorous seed. The proper way to secure it is to pick out the best ears at the time of cutting, strip back the husks, leaving a few on to tie the ears together in bunches and hang up in an open shed so as to thoroughly dry before cold weather. If purchasing seed, try and secure good seed from some reliable firm who make a specialty of corn. Mark the land out in squares from three feet six inches to three feet eight inches apart and plant from three to five grains in every square. If planting by hand, drop the way the land was marked the first time, so as to drop the grain exactly in the crossing. Any one who has dropped corn or covered, following the way the marker was last used, will have noticed that the tendency is to drop on the further side of the crossing, and in coming back again the same tendency occurs, and the corn, instead of being in a straight line, will be zig-zag, and form a row from six to ten inches wide. If using a planter stick it in the corner of the loose earth, always using the same corner, say the north-west or the south-west, then when the field is finished there will be straight, narrow rows, when the corn comes up, that can be easily cultivated. Harrow soon after the corn is planted, before the corn sprouts come up near the top of the ground. Soon after the corn is well up, harrow once or twice, using a light harrow or a weeder. When cultivating, only go once in a row, but set the cultivator not quite the full width of the row and watch one side, working close to that side of the row, so that when once over, one and the same side of all the rows will be well done. The next time going over the field, take the opposite side of the row and follow the same rule. As a result, when the field has been gone over twice, the rows are thoroughly done on both sides, and even if the field is dirty or weedy the same end has been accomplished as if the cultivator had been used twice on the same day, and the corn, or any other crop, is much more benefited by being gone through and stirred on two separate days. Continue working the corn until the silk shows well and the ears stick out a little, working shallow and using a short whiffletree.

Corn planted in squares will not bend over and fall down, or be beaten down by a heavy rainstorm as readily as when planted singly in rows, and is thus easier cut by the harvesters.

Always cut when a large proportion of the ears are in glazing stage; at this time the stalks can be put in the silo without wilting. Mr. Erb, M.P., for South Perth, mixes three varieties of corn that will ripen at the same time, but producing ears at different heights, so that when running the sheaves through the cutting box the ears are not all in a bunch, but spread over a large surface of the sheaf, thus working much better in the machine.

Every farmer who keeps cows or cattle for any purpose should grow several acres of corn, as it not only produces more and better feed from the same acreage than almost any other crop, but leaves the land in fine shape for the succeeding crops.

DISCUSSION.

Q.—If corn is not quite ripe and there is a danger of frost, would you advise cutting at once? A.—Robt. Thompson, St. Catharines. No, I would prefer to take the chance of the frost keeping off, and if frost should come, then leave everything else and get the corn cut at once.

Q.—What kind of a marker do you prefer? A.—One with shafts attached to a beam and feet inserted two and a half feet long and slanting a little backward, with handles to guide and also to lift around the ends.

Q.—How would you save or secure good corn seed? A.—When harvesting the crop or cutting for the silo I would select the best matured ears, strip the husks back, leaving some on the ear, plait or tie together several of the ears and hang up in a dry, cool shed. This rule will apply to the counties where corn only comes to the glazing stage and seed is hard to save.

Q.—Would you advise grinding the cobs with the grain for feeding? A.—No.

Q.—What will prevent the crows from pulling the seed corn? A.—Take a half bushel of corn and put in a round tub or pot, sprinkle with enough boiling water to just moisten the grain, then drop in small quantities of coal or gas tar (from one to two tablespoonfuls to the half bushel), stirring thoroughly while putting on the water and tar. Continue stirring until every grain is touched with the tar. Dry by sprinkling with land plaster, and you will find that the crows will not touch the tarred corn.

Q.—Which is better for ensilage, a variety of corn that will come to the glazing stage and produce a large proportion of ears, or a larger, stronger growing variety producing from three to four tons more of stalks and a larger proportion of the ears coming only to the silking, and some to the milk stage? A.—I would prefer a variety of corn that would produce grain in the glazing stage, even if there should be a less yield, as the more mature variety is very much more nutritious.

Q.—Does corn need cultivation during the wet season as much as in the dry season? A.—During a wet season stirring the soil drys and warms it, and by working after a rain when the ground is sufficiently dry, it prevents baking or crusting of the surface soil.

Q.—What about plowing after a corn crop? A.—If the field has been well cultivated and kept clean I would prefer not to plow it, or if so, very shallow; by seeding with barley or oats there will be a surer catch if not plowed.

Q.—What variety of oats or barley would you sow so as to have them ripen together? A.—I would sow the White Siberian Oat, about one bushel, and the Mandscheuri Barley, one and one-quarter bushel to the acre. Although the barley ripens sooner I find this an advantage, as the oats shoot up above the barley, and I can cut the oats a little greener. Then, too, the ripe barley helps to dry the oat straw, and the barley does not shell, being protected by the oats.

Q.—What varieties of corn would be suitable for this district? (Huron and Bruce) A.—T. H. Mason, Straffordville. Near the lake I should think Wisconsin White Dent

or Leaming would ripen. Inland I would prefer some earlier ripening variety, like Compton's Early, Longfellow or King Phillip. Thomas McMillan, of Constance, Huron County, after a trial of several years, strongly recommends the Baillie as the best variety in his section.

(a) Select varieties that will ripen in your locality.

(b) Save your own seed from the largest, best-formed and earlier-ripening ears. Braid and hang up where it will be thoroughly dried out before heavy freezing weather comes. In all probability there will be a great deal of inferior seed-corn this spring. The season of 1902 was most unfavorable, cold, wet and backward. The seed was not properly matured or dried. I would strongly recommend those who have to purchase seed to get samples early and test its vitality.

Q.—Is corn hard on the land? A.—Corn is a gross, heavy feeder. While, ton for ton, it does not remove as much fertility as most farm crops, still the bulk of the crop is so large that it draws heavily from the soil. Of course, being fed on the farm, most of the utility is again returned to the soil.

Q.—What varieties of corn are best for grain? A.—Blue Blade and White Flint are the earliest flint varieties I know of. They give a large yield of grain to the ear, have rather a small stalk, will ripen in 100 days, and should suit almost any part of Northern Ontario. Sweet Nose and Eight-rowed Canada stand next in point of earliness; then come Compton's Early, Longfellow and King Phillip.

Q.—What varieties are suitable for silage? A.—For Southern Ontario, Mastodon Dent, Mammoth Cuban, Cloud's Early, Wisconsin Earliest White, and Leaming.

For Central Ontario, Wisconsin Earliest White, Battle Co. Dent, White Cap. Yellow Dent, and North Star Dent.

For Northern Ontario, Compton's Early, Longfellow and King Phillip.

Q.—Which is the better method of cultivation, hills or drills? A.—If you wish to thoroughly and cheaply clean the land, the hills are preferable. Experiments also show that a slightly greater yield of grain can be obtained in this way. If hand-cutting is practised a much neater and quicker job can be done.

Q.—What is the relative value of corn silage and turnips? A.—Dr. Henry G. Reed, Georgetown. There is more dry matter in silage than in turnips, and consequently quite a lot more feed, but in the turnips there is a larger percentage of protein, which is worth more than carbohydrates.

Q.—Do you think the practice of growing so much corn on our farms makes them less likely to produce good crops of wheat? A.—Certainly a large crop of corn is exacting on the plant food of the soil, but clover and manure will put it in shape for growing wheat.

Q.—Did you ever have any experience in putting corn into the silo when wet? A.—Andrew Elliott, Galt. Yes. If the corn is well matured the wet will not hurt it.

Q.—Is it necessary to mix the corn in the silo? A.—Yes. It should be well tramped down.

Q.—Which can be grown the cheapest, corn or turnips? A.—Perhaps corn can be grown more cheaply, but I want both.

BUILDING THE NEW BARN.

A. P. Ketchen, Ottawa.

In our modern systems of intensive agriculture, in which all, or nearly all, of the produce of the land is fed to some class of live stock, and marketed in the form of live stock products, the stock barn is a very important part of the farmer's equipment. It

is not enough that a man provide himself with first-class stock of the most approved type and breeding; nor is it enough that he feed his animals liberally and skilfully; if the most profitable results are to be obtained, the stock must be housed in sanitary buildings, so arranged as to permit of their care at a minimum cost of time and labor.

Under ordinary circumstances, a farmer builds but once in a life-time. It is, therefore, important that every smallest detail of the proposed new barn be carefully thought out before commencing operations, in order to avoid mistakes, which are, often, not easily remedied after the building is erected. Neglect to do this may result in an error that will be a constant source of regret for years.

Conditions differ so much in different localities, and even on different farms in the same locality, that to attempt to outline a model barn that could be adapted to the needs of all would be absurd. There are, however, certain main principles that are equally applicable under all conditions; and it is to a discussion of some of these underlying principles that I propose to address myself in this essay.

One of the most important of these principles is efficiency, or adaptability. The barn must be adapted to the purpose for which it is being built. That is to say, it must afford ample accommodation, under the most sanitary conditions, for all the stock that are likely to be kept on the farm; it must be adapted to the particular kind of stock to be kept;—if on a dairy farm, it must be suited to the requirements of dairy stock if the farm be devoted to mixed farming, the barn must be modified in certain particulars to suit the requirements of mixed husbandry—and it must afford storage for all the produce of the particular farm on which it is to be built. It is a foolish mistake to build, on a two hundred acre farm, a barn suited only to the requirements of a hundred acres; it is equally absurd to build, on a hundred acre farm, a barn large enough for two hundred acres.

Another important principle, to be kept in mind in building the new barn, is economy: economy in first cost of erection, economy in cost of maintenance afterwards, and economy in time and labor, in the storing of hay and grain, and in caring for the stock. By the term economy, I do not necessarily mean a saving of outlay; economy may, and, in fact, does mean judicious expenditure. That man is most economical who, while avoiding all unprofitable expense, seizes every opportunity to invest money or labor where it is likely to yield him good dividends, whether those dividends be in the form of cash or in some other source of satisfaction. While, therefore, I do not endorse the practice of building fancy structures beyond the means of the owners, I do say, that, when a few extra dollars, expended here and there on a new barn, will add daily to the comfort and welfare of the stock, and be a lasting source of pleasure and satisfaction to those in charge of them, it is good economy to make the investment.

Great care should be taken in the selection of a site for the barn. It must, above all things else, be dry, preferably the crown of some slight knoll, or elevation. Until quite recently, it has been the prevailing practice to select the face of a side-hill, and to excavate so that the stable doors would open on a level with the surface, while the back of the stable would be from two to four feet below the level of the ground. This has been found to be a mistake, and, especially in the clay districts, has been abandoned. If the subsoil be very dry, porous sand, or gravel, the objection to this practice is not so great; but on a clay soil it is next to impossible to secure a perfectly dry stable and yard on the face of a side-hill, and especially if excavated in the manner that I have indicated. Not only have we to contend with the surface water—this perhaps would be easily diverted—but there is a constant soakage from the face of a clay slope of this kind, that tends to keep the stable damp, and the yards soft and muddy during a large part of the fall and spring months. Good drainage will, it is true, prevent water from actually

percolating through the walls into the stable, but even with the best of drainage the walls will be damp and cold, especially in the spring, when the ground is saturated with water. The floor, too, has been brought closer to the level of the soil water, and will be colder than if separated, by two or three feet of relatively dry earth, from the water table. To build on the level, or on the crown of some slight elevation, entails more labor in building the approach, but, apart altogether from better sanitary conditions, it is well worth the trouble. The barn looks better, adding considerably to the general appearance of the homestead; the foundation is apt to be better, because of more perfect drainage; and the surroundings are more likely to be clean and dry, an advantage not easily over-estimated.

The barn should be far enough from the house to reduce the danger from fire to a minimum, to avoid contamination of the well by soakage, and to preclude any annoyance in the house from stable or barnyard odors. On the other hand, the distance should not be so great as to become an inconvenience. The various members of the family make a good many trips between the house and the barn in the course of a year; to shorten the distance, therefore, by even a few yards, effects a saving of time and energy that is worth considering.

Since our prevailing winds are from the north and west, it is desirable to have the barn facing the south or the east. This locates the yard, not only on the sunny side, but also on the sheltered side of the barn; it also minimizes the probability of cold winds blowing directly in at the doors when open, as they generally are during a part, at least, of every day.

A good foundation, while not necessarily the most important part of a building, is at least essential to a good wall. While a good foundation does not insure a good wall, a defective foundation does ensure a cracked, unsightly, and short-lived building. Yet, strange to say, many, if not most, of the contractors building basement walls for farmers throughout the country, are culpably careless about their foundations. The

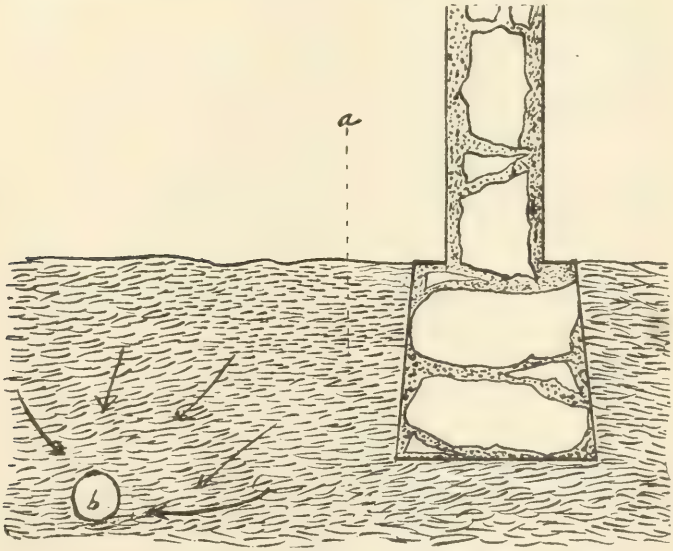


FIG. 1—End section of a good foundation and a well built concrete wall.

writer has seen many expensive, and, otherwise skilfully constructed buildings, ruined because of a lack of proper care and foresight on the part of the builders in the laying of the foundations, or footings.

The foundation required will vary with the nature of the soil. On a sandy, or gravelly site, there is no danger of injury from frost; it is, therefore, necessary to remove only the loose surface soil; but the footings should be wider than is necessary on a clay subsoil, to prevent damage from settling. On a clay subsoil, owing to greater liability to heave with the frost, it is better to lay the footings not less than twenty-four inches below the surface. It is not necessary, however, to give them so wide a base as on a more yielding soil. The foundation should be somewhat wider at the bottom than at the ground line, as shown in Fig. 1. When this is done the soil at A, on expansion with the frost, lifts off the wall, and does no damage. But if, on the other hand, the sides of the trench have been allowed to slope in a little towards the bottom, as in Fig. 2, the soil at A, on freezing, lifts the wall with it, and a damaged wall is the inevitable result. This mistake is a very common one.

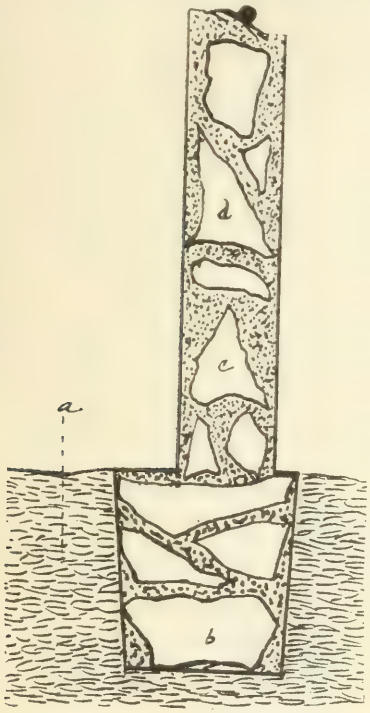


FIG. 2—End section of a bad foundation and a poorly constructed concrete wall. Note the foundation resting on the soil *A*, instead of the soil on the foundation, as in Fig. 1, the wall placed on one side of the foundation, and the wedge-shaped stones *C* and *D*, tending to split the wall.

When lining out the trenches for the foundations, care should be taken to place them so that the wall will come exactly over the middle of the footings, as shown in Fig. I. A very common and inexcusable blunder is illustrated in Fig. II. When the wall is placed on one side of the footing, as shown in this figure, the weight of the building tends to tilt the foundation and crack the wall. A crack due to this cause is usually longitudinal, especially in a brick or concrete wall. In a stone wall, cracks due to any cause are generally more or less diagonal, and in any wall, if due to unequal settling of the foundation, they are diagonal.

All foundations should be laid in cement concrete. It adds but little to the expense, and, if intelligently done, it ensures stability.

A very important, if not the most important, essential to a good foundation, is thorough drainage. A tile drain should be laid completely around the building about three feet from the wall, and, if possible, a little lower than the footings. This will keep the soil dry below and round the foundation, and will reduce to a minimum the probability of damage from either settling or heaving by the frost. It is well to remember that, in spite of the most careful precaution, all foundations settle a little.

It has been a very common practice among country masons to dig a trench of almost any shape and size, fill it with cobblestones, and make this imitation serve the double purpose of foundation and drain. If all the other conditions are favorable, a good wall can sometimes be maintained on such a footing, but the odds are heavy against it. The practice is all wrong in principle. The water, instead of being removed from the wall, is drawn to the very place where it is not wanted, softening the substratum, and bringing about the conditions most conducive to uneven settling and cracked walls. Another, though less serious, objection to this cobblestone foundation, is that it furnishes a harbor for rats, from which they frequently burrow underneath the con-

crete floors of the stable, and sometimes undermine them to such an extent as to cause them to settle and crack.

Basement Walls.

The material used for the wall, whether it shall be concrete, brick, stone, or wood, will be determined largely by the local conditions, chiefly by the ease with which the several materials can be obtained.

The merit of a good wall consists in:—

1. Durability—The material and the workmanship must be of such a nature as will ensure permanency.

2. Strength—The walls must be strong enough to support safely any weight that may be imposed upon them, and to resist any strain to which they may be subjected, as, for instance, violent wind storms. This strength should be obtained without undue thickness. A thick wall not only reduces the size of the stable, but also interferes with the lighting.

3. Insulation—The wall must be a non-conductor of heat, to facilitate the control of the stable temperature in any weather, and also to prevent the condensation of moisture upon its surface.

4. Economy in cost of construction.

5. Beauty—"A thing of beauty is a joy forever," and a handsome building is not to be excepted. Beauty in a barn does not consist in expensive ornamentation, but in a trim, tidy, substantial and consistent appearance.

In districts where clean gravel can be readily obtained, cement concrete fulfils all of these requirements admirably. It is, if intelligently used, the most durable material at our disposal. It is strong, dry, and warm; a twelve-inch concrete wall will carry as much weight, and turn as much frost as a twenty-four inch stone wall. It can be built for less money than either brick or stone, and, when properly finished, presents a very fine appearance.

Brick is also an excellent material for basement walls, perhaps equal to concrete in all other particulars than durability and cost. A good brick wall usually costs more than concrete, and it is less durable; but it is strong enough without excessive thickness; it is an excellent non-conductor; and it is quite attractive in appearance.

Stone, because of the relative ease with which it can be obtained in most districts, has, heretofore, been more largely used than any other material. In cost, a stone wall is intermediate between concrete and brick; it is more durable than brick, but, unless laid in cement mortar, less durable than concrete. If really good stone is used, it makes, perhaps, the best looking wall of the three; although tastes differ widely in this particular. The chief objection to stone is its dampness. Being a rapid conductor of heat, a stone wall condenses upon its surface, the moisture in the atmosphere of the stable, and, as a consequence, is generally damp in mild weather, and coated with hoar frost in severe weather.

It is not my purpose in this paper to give detailed instructions for the building of the walls. That is the business of the mason, and, since it is above ground and subject to criticism, it is generally fairly well done. I have described the foundations at greater length because it is in them, more often than in the walls that the farmer is imposed upon by the half-baked mason, too many of whom, I regret to say, are allowed to run at large.

Doors and Windows.

While the walls are in course of erection, the owner should be careful to see that the doors and windows are properly set and in their right places. A mistake of a foot or more in the placing of a door or window is a source of annoyance not easily reme-

died. Be careful, also, to see that stiff spreaders are kept between the jambs of doors and windows which the mason work is in progress. Without this precaution the frames will be crowded out of square by the pressure of the green wall.

Sunlight is not only the cheapest, but also one of the most efficient agents known for the destruction of disease germs. It follows, then, that the windows should be of good size and numerous. In a wall twelve inches thick, with the rays of the sun striking it at an angle of forty degrees, a window sixty inches wide will admit nearly three times as wide a stream of sunlight as another that is only thirty inches wide; and if the wall be twenty inches thick, the one will admit, under the same conditions, more than four times as great a stream of sunshine as the other. Hence the economy of large windows and thin walls.

The doors should be wide enough to prevent undue crowding of stock while going in and out. Three and a half to four feet is about right for cattle. One of the horse-stable doors should be seven feet wide, in order that a team may be driven into or out of the stable without separating them. The door should always be in two pieces, so that the upper half may be left open if desired.

Floors.

Whatever may be said in favor of other materials for walls, there is nothing else in common use in Canada that at all compares with cement concrete for stable floors. When well put in, it is there for all time; it presents a smooth surface for cleaning without being unduly slippery; it is watertight, thus preventing the loss of the most valuable constituents of the manure; it is sweet, clean and sanitary; and it can be put in at a moderate cost, not exceeding that of a wooden floor with lumber at $15.00 per M.

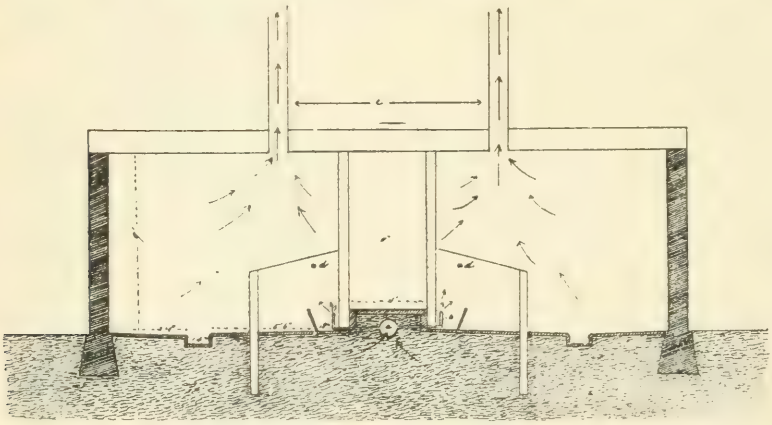


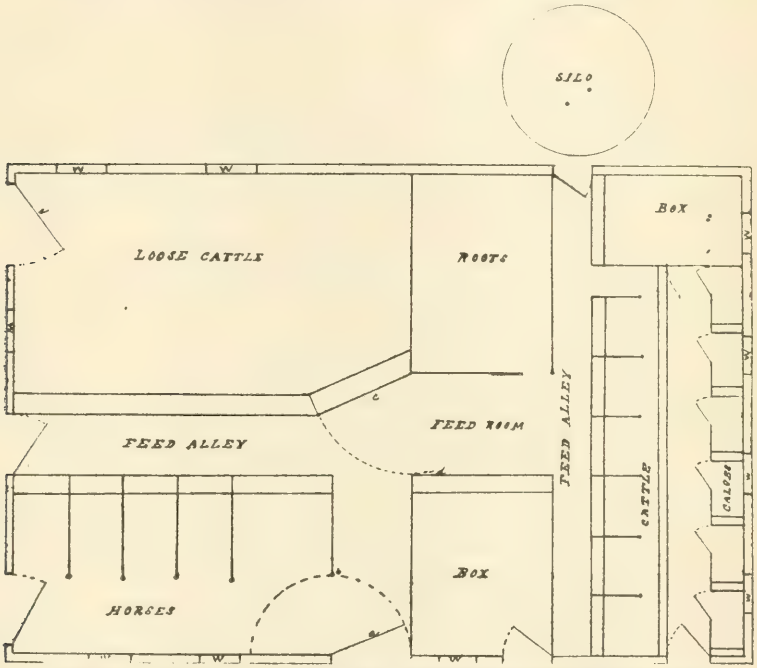
FIG. 3.—End section of a cattle stable, showing floor, elevated feeding alley and system of ventilation.
(*a*) Fresh air conduit.
(*b*) Distributing pipes.
(*c*) Foul air shafts.
(*d*) Scantling 4 x 4, to prevent cattle getting into mangers. This is the only obstruction necessary between the cattle and the feeding alley.

For the convenience of those who may wish to lay their own cement floors, I shall endeavor to describe briefly the method.

The first thing to be done is to grade the bottom carefully. To facilitate accuracy, stretch a line level with the proposed surface of the finished floor, and grade the clay to four inches below the line. Use a linen line for this purpose, as a cotton line will sag too much from its own weight. The floor should be perfectly level lengthwise of the rows of stock. Some men grade the gutter two or three inches lower at the door. This

is a mistake, because all the liquid runs to the lower end of the gutter, and accumulates in greater quantities than can be readily absorbed by the litter. The alley behind the cattle should slope towards the gutter with a fall of not more than one-half of an inch in six feet. If it is given a greater fall than this, the cattle are apt to slip on it, and serious injury may occur. For cows, the stalls should be given about the same grade as that named for the alley; for steers, the fall should be about one and one-quarter inches.

If, in grading, it is necessary to fill up any low places, gravel, broken stone or clay may be used; the only precaution necessary is to ram the filling solid, in order that it may not afterwards settle away from the floor.



PLAN No. 1.—Barn 50 x 75, adapted to the requirements of mixed farming on a farm of 100 to 150 acres.

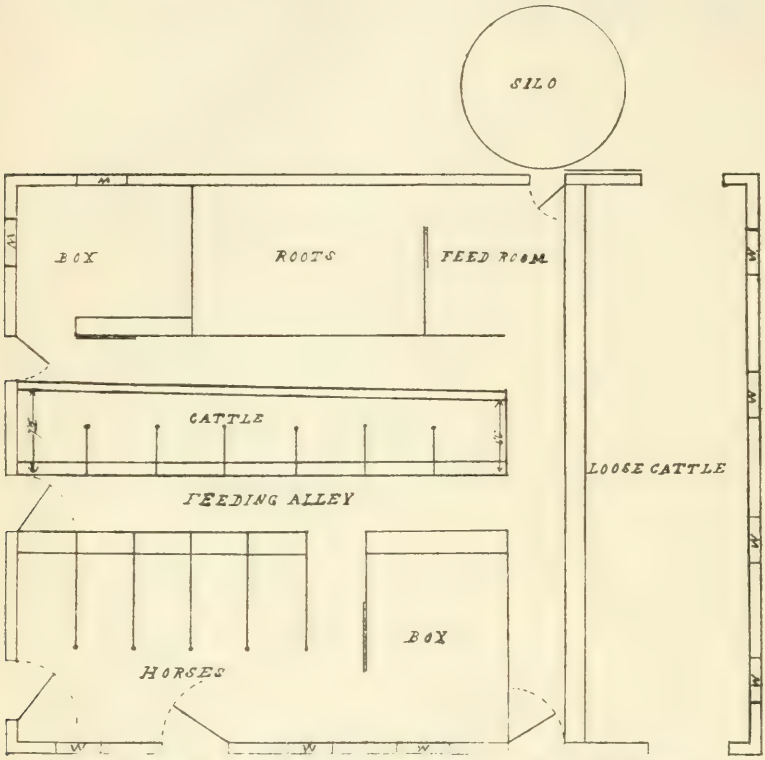
Note the location of the feed-room, and convenience for feeding. To clean out the loose cattle, the door (*a*) is fastened with hook to tail-post (*b*). The gate (*c*) with manger attached, is swung across the feed-room and attached at (*d*). A team can then be readily driven through this alley, and out at (*e*).

After grading, the posts should be put in. The tail posts should be set about three feet in the ground, and extend about the same length above the finished floor. (See Fig. 3.) The posts supporting the weight of the super-structure should be set on large flat stones, or on concrete bases; and all timbers should be lined up plumb and straight before commencing to lay the floor.

If it is intended to use the system of ventilation recommended in this paper, the next operation is to build the retaining walls for the elevated feeding alley. (See Fig 3.) To build these walls, set two straight planks, twelve inches wide, on edge, six inches apart; stake them firmly to place, and fill with concrete, taking care to tamp the concrete well as it is being put in.

For mixing the concrete, make a mortar board about twelve feet square, using planks, or, better still, double inch lumber, breaking the joints. It is important that the mortar board be solid and present a smooth, level surface. Mixing concrete is no light work at the best; and, on a loose, uneven mortar board, this labor is unnecessarily increased.

We now require a guage for the gravel. This consists of the sides and ends of a box, without the bottom. Handles are nailed on the sides, so that when measured full of gravel the guage may be readily lifted off and laid to one side. The dimensions of the guage will be determined by the relative proportion of cement and gravel, and by the size of the batch to be mixed at a time. A barrel of cement contains approximately four cubic feet. If, therefore, we wish to mix one-half barrel of cement at a time, in the ratio of four to one, our gravel guage must measure eight cubic feet of gravel.



PLAN No. 2.—Barn 50 x 65. This also is a very convenient barn for 100 acres devoted to mixed farming.

The ratio of cement to gravel will depend upon the material used. If pure, clean, sharp gravel is used, with a good brand of rock cement, a concrete mixed about 4 to 1 will be found suitable for cattle stable floors. If Portland cement is used with the same gravel, it may be mixed 6 or 7 to 1, to give equally good results. It is bad, very bad, economy to attempt to make two barrels of cement do the work of three. Some dealers, in their over-anxiety for trade, are willing to assure a prospective customer that their particular brand of cement may be mixed in the proportion of ten or twelve to one, and produce a floor as hard as steel, and as durable as the everlasting hills. It cannot be done. Enough cement must be used to fill up the interstices of the gravel, and make a close, compact, impervious concrete. If the floor is open enough to allow the liquid portions of the manure to percolate through it, fermentation soon destroys the bond, and the floor is ruined.

Having made a gravel guage of the desired dimensions, place it on the mortar board near one side, fill it half full of gravel, put on half the amount of cement, fill the guage with gravel, and put the balance of the cement on top. Now, lift off the guage, and, with a square-mouthed shovel, shovel the pile over twice, throwing it up into a cone-

shaped pile each time, so that each shovelful, as it is added, rolls down evenly on all sides of the cone. If this is carefully done, the cement and gravel will be evenly incorporated. If it is carelessly done, it will be necessary to turn the pile again to secure an even admixture, which is a prime essential to good concrete.

When the cement and gravel have been well mixed dry, spread the pile out evenly on the mortar board, about four inches thick; add water in small quantities; turn with shovel until evenly moistened, when the concrete will be ready for use. Take care to avoid getting the mortar too wet. It should be of such a consistency that it will not puddle when rammed, but will admit of being tamped down into a solid, compact mass. If the mortar has been properly tempered, ramming will bring just enough moisture to the surface to make it trowel readily to a finish.

The bottom of the gutter should be laid first. To find the depth to dig the trench, stretch the line on a level with the finished floor, and in line with the side of the gutter next to the cattle, and grade the bottom of the trench ten inches below the line and six inches wider than the finished gutter is to be, so that when the mould for the gutter is placed in position, the floor of the gutter will extend three inches on each side of the mould. Now spread an inch of sand or gravel on the bottom, and on the top of this a three-inch floor of concrete, rammed well to place, and trowelled to a smooth surface. The bottom of the gutter should be as smooth as possible, to facilitate cleaning. Now, lay on the mould for the gutter. A convenient mould is made by using a 2x6-in. plank for the side next to the stall, and a 2x4-in. for the side next to the alley; set these planks on edge, putting a ten-inch spreader between them every three or four feet. These spreaders should not be nailed, or it will be hard to get the mould out without breaking the edges off the gutter. After placing the gutter-mould in position, set a 2x4-in. scantling on edge parallel with the wall, and separated from it by small wedges, to enable you to get these scantling out again without damaging the floor. Set another scantling in the same way next to the retaining wall of the feeding alley. The upper edge of these scantlings must be levelled to the proposed surface of the floor.

We are now ready to lay the floor. First, place an inch of sand or gravel all over the stable; then fill with concrete a block about four feet wide in the alley and another in the stall immediately opposite; ram down solid with an iron rammer; screed with a straight-edge resting on the gutter mould, and on the scantling next to the wall. Pass the screed over it two or three times, with a sawing motion, until a perfectly true and even surface is obtained; cut off the edges next to the gutter, and finish with a wooden float. A steel float should not be used on stable floors; it makes too smooth a surface, on which the stock are liable to slip and injure themselves. Proceed in this way with alternate blocks on each side of the gutter until the stable is completed. The reason for concreting both sides concurrently is to avoid crowding the gutter-mould out of line by the ramming of the concrete on one side only. After the floor has hardened for a day or so, fill up the spaces left by the removal of the scantlings used in screeding, and the floor will be completed.

The same principles apply to the laying of horse-stable floors. They require, however, to be a little heavier than cattle-stable floors, and are better laid in two coats, a bottom layer three inches thick of concrete gauged about six to one, and a surface coat an inch thick of concrete gauged two to one. These two coats must be put down at the same time, and rammed well together, to ensure a bond. If the bottom layer is allowed to set for an hour, before the surface layer is put on, it is very hard to make them unite, and the latter will be very apt to peel off. Plank should be bedded on top of the concrete in the stalls. Horsemen do not like to let their horses stand on the bare concrete, believing it to have a drying effect on the feet.

The important principles to be observed in all concrete work are:

1. Perfectly clean gravel.—If the gravel contains either loam or fine, soft, dead sand, it is worse than useless for concrete work. Ideal gravel consists of clean, sharp, gritty particles of various sizes, ranging from that of a marble down to a clover seed. Gravel of this description will not require screening, even for a surface coat, because in the process of ramming the coarser particles are driven down, and enough of the finer material forced to the surface to take a finish.

2. Mixing.—The cement and gravel must be thoroughly incorporated before the addition of the water.

3. Tempering.—The water must not be flushed on in large quantities, so as to wash portions of the gravel free of cement. The mortar must be moistened evenly to such a consistency as will admit of ramming to a solid mass.

4. Ramming.—The strength of the finished work can be nearly trebled by ramming.

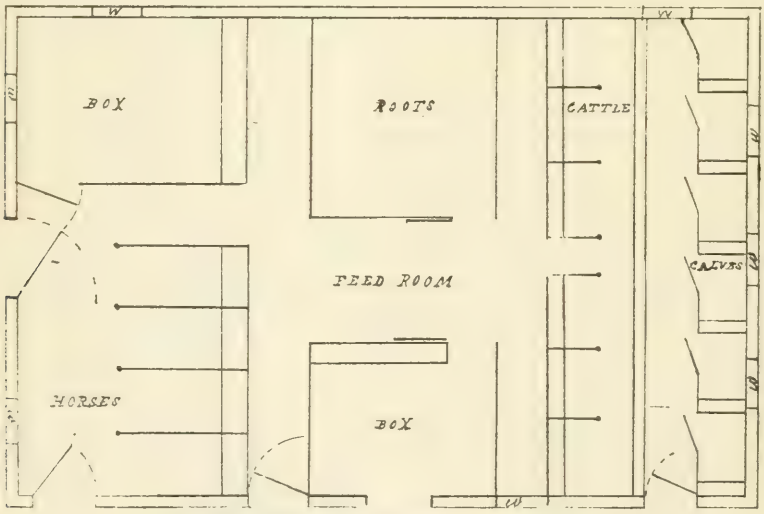
5. Ripening.—If concrete work is allowed to harden too rapidly it will be brittle and crumbly. Keep all finished work moist for at least two weeks.

Ventilation.

The requirements of a good system of ventilation are :—

1. A constant change of air in the stable.
2. The introduction and distribution of fresh air without draughts.
3. The removal of foul air without condensation and consequent dripping.
4. Economy in cost of installation.

Many systems have been devised, nearly all of them fulfilling some of these requirements, but comparatively few fulfilling all of them. Some of these devices are very simple, but only partially effective. Others are quite effective, but too cumbersome and expensive for use in farm buildings.



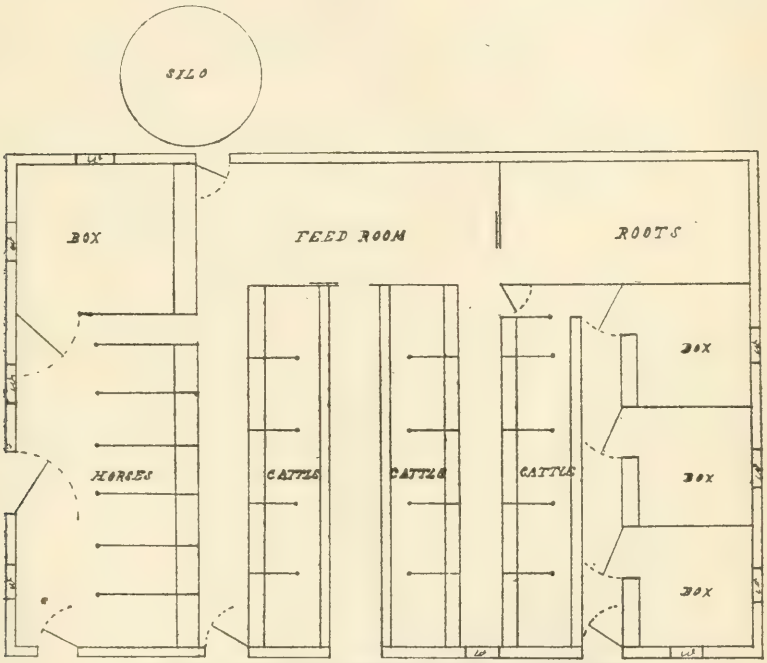
PLAN No. 3.—Barn 40 x 60, adapted to a small farm.

There is a marked similarity in many respects between a stable and a furnace. The necessity for draft in a furnace is caused by the combustion of carbon, in which process oxygen is used up, and carbon dioxide and other gases given off. Heat is evolved; and consequently, the products of combustion are warmer than the elements entering into it. These heated gases rise by convection until they are cooled to that tempera-

ture at which their specific gravity is the same as that of the surrounding air, when they tend to diffuse.

Similarly, in a stable, the necessity for fresh air arises from the continuous combustion of carbon in the animal body, using up oxygen and giving off carbon-dioxide and other deleterious gases. As in the furnace, so in the animal body, heat is evolved and the gases exhaled are warmer than those inhaled. They tend, therefore, to rise by convection until partially cooled, when they begin to diffuse through the stable atmosphere.

The problem, it seems to me, is the same in both cases: the prompt removal of the products of combustion, and the continuous renewal of the supply of oxygen. I contend, therefore, that the solution of the problem, in both cases, lies in the application of the same physical principles.



PLAN No. 4.—Barn 50 x 75, adapted to dairy farm of 100 acres.
One of the box-stalls in the cattle stable may be fitted up as a separator-room.

Now, to secure draught in a furnace, it is essential that the fresh air be admitted below the grate, and the gaseous products of combustion removed from above. If these conditions are reversed, the draught ceases, and the fire smothers, unless mechanical means of forcing a current are resorted to.

The system of ventilation that I am about to describe seems to be based on accurate, scientific principles; it has given excellent results, is practical, and it is comparatively inexpensive.

To provide for the fresh air conduit (a) (See Fig. 3), the floor of the feeding alley is elevated twelve inches above the level of the stalls. The conduit may consist of a ten-inch tile, or a wooden box about twelve inches square. This will admit enough fresh air for fifteen cattle; if more are to be supplied, a conduit placed on each side of the feeding alley will be sufficient. The main conduit is tapped opposite each pair of cattle by the distributing pipe (b). These lead into the mangers, as shown, and are placed

close against the parting blocks, their open ends being protected against plugging with dirt by a leather flap, or some other device. The foul air is carried off by means of ventilating shafts, leading from the ceiling of the stable out through the roof. Most farmers now run the purline post straight from the floor to the purline. Beside these posts is a very convenient place for the ventilating flues; they are out of the way, and they are not so readily chilled as when placed against the side of the barn. Excessive chilling of these foul air outlets not only reduces the convection current, but condenses moisture, causing them to drip.

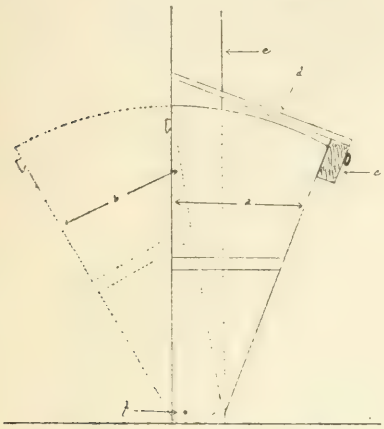


Fig. 4.—Swinging manger for horses.

(*a*) Manger in position.
(*b*) Manger swung out into alley to receive food.
(*c*) Stationary scantling to which the horses are tieds
(*d*) Bars placed 12 inches apart to prevent horse. from throwing out the hay.
(*e*) Post.
(*f*) Bolt on which the manger is hinged.

It will be seen by this method, the fresh air is admitted, as in the furnace below the heating area; it is distributed evenly and without drafts; it is liberated at the heads of the cattle, giving them a chance to use it before it has been diluted by the poisonous gases of the stable; as it is heated by inhalation and by the heat radiated from the bodies of the animals, convection currents are set up towards the ceiling, and out through the foul air shafts. The system is automatic in its action; the more stock in the stable, the stronger the convection current, and the more fresh air introduced.

Putting in the Stabling.

To lay out a stable in such a way as to effect the greatest economy of space and convenience for feeding is an art for which no hard and fast rules can be laid down. One must "cut his coat according to the cloth," so to speak. There are, however, a few general principles which we should be careful to observe, in so far as the conditions will admit.

The feed room and root cellar should be centrally located, for convenience in feeding, and also in filling the root cellar, which is most easily accomplished when the latter is directly under the barn floor.

The horse stable should be so located as to admit of two entrances: one opening into the barnyard, for cleaning out the manure, the other so placed that the horses may be taken in and out without going through the barnyard.

Apartments for loose cattle should be long and narrow rather than square, to admit of plenty of manger room. They should be located so that a team may be driven through for cleaning out.

The alleys behind the stock should be of good width; not less than eight feet behind the horses, and not less than five feet behind the cattle. It is better, if necessary, to narrow up the feeding alley, than to have a very narrow alley behind the stock. The floor of the alley behind the stock should be two inches lower than the stalls. The animals look much better if standing a little higher.

The mangers for tied cattle should be put on the floor level, as shown in Fig. 3. If elevated eight or ten inches, as was formerly the custom, the cattle, when lying, are forced back into the gutter; but when put in on the level, they lie with their heads over the mangers, and not only greater comfort but also greater cleanliness is secured. The

mangers for loose cattle should be raised at least twelve inches, especially if the manure is to be allowed to accumulate.

The bottoms of all mangers, except for horses, should be of cement concrete, trowelled to a smooth finish. It is cleaner and lasts longer than wood, which rots out surprisingly fast in a manger. The whole manger may be made of cement if desired; but I prefer that shown in Fig. 3; of which the bottom and back are of concrete. The face plank may be moved backwards or forwards if necessary to adapt the length of the stall to the animal tied. If it is necessary to tie cattle of various ages in one row, the gutter may be put in on an angle as shown in Plan 2. This looks better, and is more convenient for cleaning, than to make part of the stalls of one length and the rest of another, with a sharp turn in the gutter.

The best horse-manger I have seen is illustrated in Fig. 4. When pulled out into the alley, the food may be put in and any necessary mixing done without molestation from the horse; or if, for any reason, it is necessary for the man to be absent for a part of the day, the mangers may be left swung into the alley with the necessary food in them, and at feeding time a child can push them through to the horses.

No stable is complete without some provision for watering the cattle inside. Many more or less ingenious and complicated devices have been patented; but I believe that there is nothing better than a continuous wooden trough, lined with galvanized iron. It is more easily kept clean and is less liable to get broken, choked up, or otherwise out of order. This may be made to serve a double purpose by placing in the position of the scantling (d) shown in Fig. 3.

All inside partitions and stalls should be kept as low as possible, to prevent all unnecessary obstruction to the light and view. A man standing almost any place in the stable should be able to see every animal in it. The stalls between milking animals should be no longer than is necessary to prevent the molestation of one animal by the other, in order that they may be out of the way of the attendants while milking. Stall-posts should be grooved to receive the planks. This, although slightly more trouble, is very much to be preferred to cleating.

An excellent device for feeding loose cattle consists of a row of old-fashioned, stationary stanchions, the movable bars of which are connected, by a rod, with a lever at one end of the building. When the cattle are fed, each animal thrusts his head through an open stanchion to reach the manager; all the stanchions are then closed at once by means of the lever. In this way the cattle are prevented from crowding one another away from the mangers until through eating, when they may be quickly and easily released. This I believe to be the ideal method of handling all classes of cattle except milking cows.

It is well to provide one or two box-stalls for breeding animals, and for colts. At least one in connection with the horse stable should be not less than fifteen feet square; a small stall is a very dangerous place to keep a mare and foal.

For calves, the most convenient device is a row of boxes behind the cows, as shown in Fig. 1. These should have little mangers, so arranged that the calves cannot upset, and spill the milk when placed in them.

I would make no provision for housing sheep, hogs or poultry in the main barn. It is too warm and also too expensive for sheep; hogs create an undesirable odor; and poultry are apt to infest the stock with vermin. Of the three, I prefer to accommodate the hogs; for, with good ventilation, the odor may be largely overcome.

I append a number of plans for stabling, adapted to various conditions.

These plans are not submitted as models of perfection, from which we may not deviate; they are added to illustrate some of the principles that I have attempted to out-

line in this essay, with the hope that they will be helpful to the prospective builder as suggestive outlines, which he may modify to suit his own peculiar conditions and tastes.

It will be noticed that in no case does the width of the barn exceed fifty feet. A wider barn could often be laid out more conveniently below, but it is too wide for convenience in storing hay and grain above. When stuff is hoisted with the hay-fork or slings it is as far as a man can pitch nicely to throw it to each end without handling it twice. Again, at threshing time, a very wide barn is inconvenient for getting stuff to the machine, and also for getting straw away from it. I find that nearly all of those that have built barns wider than fifty feet regret it.

It will also be noticed that I have made no provision for an "overshot." The basement should be the full size of the barn above. I regard an overshot as a wasteful device for building the stable outdoors. It entails a waste of valuable space, it darkens the stall very considerably, it is apt to be draughty, and, as an off-set to all this, it has few, if any, redeeming features.

HORTICULTURE.

SPRAYING AN APPLE ORCHARD.

By Frank J. Barber, Georgetown.

In writing on the above subject, it is not now necessary, as it was a few years ago, to discuss the question "Does it pay to spray?" All of our most successful fruit-growers spray their trees systematically throughout the growing season. They have found that it not only increases the quantity of fruit on the tree, but, what is of more importance still, it increases the value of the crop to an extent that has almost to be seen to be believed.

The benefits to be derived from spraying do not stop, there, however, for it is known that the tree itself receives a direct benefit from the healthy condition that the foliage remains in during the season. For, as the leaves are the lungs of the tree, they are therefore just as important as the lungs in the human being in sustaining life.

It is self-evident that a tree which is kept healthy will live much longer, barring accidents, than one that has been neglected. It takes a number of years to bring an apple tree into full bearing, and every means should be employed to keep it in a good, thrifty condition, in order that it may furnish us with fruit for as many years as possible.

As spraying trees is a tedious undertaking at any time, it behoves us to have the best appliances that can be procured. The spray pump should be built for two lines of hose, one to be attached to the bamboo for high work, and the other for the lower branches of the tree. We use a Y and two nozzles on the lower line and a triple head with three nozzles for the upper line. With a good pump the work can be done just as well and much quicker. It is essential that the pump be capable of giving a high pressure, as it is the force with which it is applied that breaks the liquid up into the fine spray, which is required for the best results. Good nozzles are necessary, the McGowan and Vermorel being probably the most used. A suit of sailor's oil-skins, with a cap and rubber gloves will add to the comfort of the operator. A cover of some description should be used on the horses to protect the harness. The ordinary fifty-gallon tank is large enough for four or five hundred trees. We found that with our orchard of 3,000 apple trees there was too much time wasted in refilling the tank, so we had a tank built holding 200 gallons, and that quantity just gives us a half day's spraying.

In all our spraying we should have a distinct purpose in view. Insect enemies attack the trees in two different ways, and what will destroy the one class will not affect the other. First, we have those biting insects which consume their food by means of jaws, such as the caterpillars. For them all that is necessary is to place on the plant food some poisonous material which will be eaten with the food. Then, we have the sucking insects, which feed on the tree in exactly the same manner that mosquitoes will feed on your hand, sucking their food through a hollow tube. In this case, we must use something that will kill by mere contact with their bodies. For such insects as the borers, which attack the trunk of the tree, we use an alkaline or strong-smelling wash to prevent the insect from laying its eggs in the bark of the tree. We have also to protect our trees from the attacks of injurious fungi, such as the apple spot or scab.

The first spraying of the season is done just after the buds begin to swell. For this we use Bordeaux mixture to destroy fungous diseases, prepared as follows:—

Make a solution of 4 pounds copper sulphate in 4 gallons of hot water. Slake 4 pounds fresh lime in same quantity of water. Strain the copper solution into the tank and fill up with water to about 36 gallons. Now strain in the lime water and mix thoroughly.

To the Bordeau mixture, as above, we add 4 ounces of Paris green to destroy codling worm, bud moth, leaf roller, tent caterpillar, canker worm and the case bearer. We found the case bearer and canker worm very prevalent in our orchard, but the tent caterpillar and codling worm (first brood) troubled us very little. As soon as the leaves came out we noticed the tiny green lice or aphis in great numbers on the leaves. As they come under the class known as sucking insects, we sprayed at once with whale-oil soap solution—7 pounds whale-oil soap in 50 gallons of hot water. This resulted in destroying so many that they gave us no further trouble.

The next spraying is done just before the blossoms open, and is the same as the first. At this time we noticed the case bearer was very bad, attacking the bud and destroying the young leaves. We sprayed most carefully, with the result that 50 per cent. of them were killed. The balance were found feeding on the leaves when we next sprayed immediately after the blossoms had fallen. We used the same spray as we used for the first and third, and were able to destroy a large number of the remaining case bearers. With this spray we also caught the canker worm, which was beginning to do some damage.

If we have done the work carefully and thoroughly we may now leave the trees to take care of themselves for a while, as far as the foliage and fruit is concerned.

We have other work to do, however, which is just as important as what we have already done. All bearing trees should now be scraped clear of rough bark, in preparation for the bandages, which we place on them about the first of June. These bandages are to trap the larva of the codling moth, for it has been found that about this time the larva leaves the apple and seeks some suitable place where it may enter the pupa stage. It usually takes to the tree from whence it came, and if the trunk be clean it goes up to the bandage of coarse sacking and in the folds of that spins its cocoon. It may easily be destroyed here by taking off the bandage every two weeks and dipping it in boiling water. I have found as many as sixty cocoons under one bandage in one period of two weeks.

About the first of June we prepare a wash of one quart of soft soap in two gallons of boiling water, to which is added one pint of crude carbolic acid. This we apply to the trunk of the tree with an old scrubbing brush. A second application is made three weeks after the first. This wash will prevent the borer beetles from depositing their eggs in the tree.

On the 26th of June we noticed light green spots on the apples. This is the spot or scab, a fungus that develops very rapidly, especially in wet weather. We sprayed at once with the Bordeaux mixture, leaving the Paris green out this time, as there were no insects that appeared to be doing any injury. As the weather continued to be very wet we again sprayed with the Bordeaux mixture on July 25th, to keep the apples free from the spot.

At this date (August 1st) the trees present a very fine appearance, foliage dark green, and so thick that we find that we will have to cut a lot of wood out of our trees in order that sunlight and air may get a chance to perform their proper function in the formation of perfect fruit. The fruit shows up remarkably clean, considering the wet spell, rain having fallen on 21 out of 30 days. We should have sprayed once also about July 10th, but we had not time, as we had several acres of hay to get under cover in the few dry days we had.

If the fruit shows signs of spotting we will go over the orchard again about August 15th, with ammoniacal copper carbonate, and that will complete the season's spraying. Bordeaux is apt to discolor the skin of the fruit late in the season, and the above solution is used in preference. It is prepared as follows:—Copper carbonate 1 ounce, ammonia sufficient to dissolve copper carbonate. Add above to 10 gallons of water.

If the trees are infested with oyster-shell bark-lice, they should be sprayed on a warm day in winter with 2 pounds of fresh lime to the gallon of water.

HOW WE EXTERMINATED THE BLACK KNOT IN OUR TOWNSHIP.

By J. E. Orr, Fruitland.

The question of how to get rid of this disease is still a knotty problem in some districts. In almost every meeting attended by me this winter the question was asked: "How can we get rid of Black Knot?" followed by the complaint: "We used to grow lots of cherries and plums, but now the trees are gone and the young ones are attacked as soon as planted."

There is no reason why plums and cherries cannot be successfully grown in most parts of old Ontario if this disease is controlled.

The object of this paper is to relate how we stamped out the Black Knot in the Township of Saltfleet (Wentworth County). Prior to 1893 we had a regular scourge of the knot, and our orchards were being destroyed. Many men tried to control it on their own premises, but with indifferent success, and it was evident that public sentiment must be awakened and a united effort made if we were to save our orchards and make a success of that branch of the fruit business.

Through the efforts of a local fruit-growers' club, the Yellows and Black Knot Act was passed by the Ontario Legislature in 1893, which made it compulsory for everyone to keep their premises free from Black Knot, and provided that any municipality, on the petition of fifteen rate-payers, should appoint at least one inspector to see the provisions of the act enforced. The act provides that it shall be the duty of the occupant of land, or if unoccupied, the owner, "To cut out and burn all Black Knot found on plum or cherry trees on his land, as often each year as it appears on such trees."

A petition was at once presented to our Council and inspectors appointed, and there was a general clearing up, not only of orchards, but the thickets of plum and cherry trees in fence corners, which had been prolific breeding grounds for Black Knot for many years. The inspection was followed up and the law thoroughly enforced. The result is that the disease has practically disappeared. In our plantation of about 3,000 trees we have found only two specimens in the last year.

Many other remedies have been suggested and tried, but none have been so successful. Spraying with Bordeaux mixture will help greatly in preventing new infestations, and will cost but little extra, as it has to be done for other diseases.

Cut the knot whenever seen, removing the branches about four inches below the knot. Be sure and burn them. Go over the orchard carefully in the early winter and again in early summer, when the young knots are showing. These knots are yellowish-brown in color.

Do not be discouraged if you have a crop of knots to cut the second year, as the knots do not usually appear until a year after inoculation. This plan of exterminating the knot is no experiment; we have demonstrated that it is an unqualified success.

The cost of inspection is very small. Probably the Township of Saltfleet grows more plums than any other township in Ontario, and yet in the year 1901 the cost of inspection was only $32. There should be surely fifteen rate-payers in every township willing to bring the act into force.

DISCUSSION.

Q.—Is spraying with Bordeaux mixture effective for potato blight? A.—A member (Cobourg). I have succeeded in getting splendid crops by spraying when my neighbors' crops were ruined by blight.

Q.—How late in the season would you spray apples for scab? A.—J. E. Orr, Fruitland. It depends on the season. This year the work had to be continued much later than usual. You must keep at it as long as the scab continues to grow.

Q.—When would you prune fruit trees? A.—When a light annual pruning is given, any time during the resting season.

Q.—Should young trees be sprayed? A.—Certainly, we spray trees the first season they are planted.

Q.—Is not the plum a short-lived tree? A.—If properly pruned and not allowed to overbear, they are not. We have them at 18 or 20 years old, in perfect condition and apparently good for many years yet.

Q.—Can you keep Flemish Beauty pears from cracking and scabbing? A.—Yes. Thorough spraying will do it perfectly.

Q.—Have you absolute confidence in spraying for the prevention of scab? A.—I have.

Q.—Do you bandage your apple trees for the codling moth? A.—Yes. It is compulsory in our township to bandage all apple and pear trees.

Q.—Will root pruning throw an orchard into bearing? A.—Judicious root pruning is useful in some cases. It is practised in England, I believe, where they have an excess of moisture.

Q.—How is root pruning done? A.—Usually by deeper plowing.

Q.—How does it affect the trees? A.—It lessens the flow of sap and as the leaf surface remains the same the sap is more condensed and richer, and consequently suited for the development of fruit-buds.

Q.—How is the blossom-bud of an apple formed? A.—It is evolved from the leaf bud; every leaf bud has in it the possibility of a fruit bud.

Q.—What do you consider a normal growth for an apple tree? A.—18 or 20 inches for new wood, growing from the young parts of the tree.

Q.—What effect would a severe pruning have? A.—It would cause too great a wood growth and probably throw the tree out of bearing for some time. You would get sap sprouts, and fruiting twigs would start into branches.

Q.—How much Paris green do you use for the tent caterpillar? A.—Four ounces to 40 gallons is plenty, if applied at the proper time.

Q.—What is the proper time? A.—With the first regular Bordeaux spraying. The tent caterpillar matures in the fall and winters in the egg cell and is on hand much earlier than many suppose. I have found it at work as early as the middle of April.

Q.—What will cure case bearer? A.—Spraying with Paris green.

Q.—What varieties of apples would you plant? A.—W. H. Dempsey, Trenton. Ben Davis and Ontario principally, but I like to have apples to ship from July to the following May.

Q.—Are there two Ben Davis? A.—The Gano is sometimes called the Black Ben Davis.

Q.—How do you explain the drop in prices of apples. A.—Last August the apple trade was ruined by shipping Baldwin, Greening, Ben Davis, etc., in August, along with Snow and McIntosh Red.

Q.—Would you give a heavy manuring occasionally or a light one annually? A.—J. E. Orr, Fruitland. An annual one, decidedly.

Q.—Would you prop up heavily-loaded branches? A.—Yes, but if the trees had been properly pruned the limbs will be able to hold their fruit without artificial support.

Q.—In the 1901 Report the statement is made that bandages on apple and pear trees intended to trap the codling moth should be examined two or three times during the season. Is that often enough? A.—It is not. The codling moth takes about twelve days to pupate, therefore the bandages should be examined every 10 or 12 days from 1st of July to the end of August.

Note.—A band of tarred paper has been advocated to prevent mice gnawing trees, and we have used it extensively and successfully for years, but this spring in many cases the mice have chewed away the paper and injured the trees. We will have to adopt some other plan.

Q.—Do you always cultivate your orchards? A.—We do.

Q.—How do you prevent sun-scald? A.—By low heading and planting young trees with a decided slope to the south-west.

Q.—How near the ground do you head dwarf trees? A.—About one foot to eighteen inches.

PLANTING AND CARE OF AN ORCHARD.

By F. A. Sheppard, Queenston.

The first essential point in planting an orchard is the site and the adaptability of the soil to the variety of trees to be planted, as some do best on light soil while other varieties do their best on a heavy soil.

A great deal has been said and written about site. What slope is best? The two important points as regards site are sun-scald and root-killing. I think as a rule more trees are killed by sun-scald than by root-killing, so that, generally speaking, a northern slope is preferable, but whatever the slope, the land must be well drained. Too much stress cannot be laid on the importance of having orchard land well drained. Some varieties of trees will live and do fairly well for a time in wet soil, but they will be short lived and never very profitable. It is always well to have your land in a good state of cultivation and well enriched before the trees are set, so that they may get a good start.

One of the most common mistakes made in planting trees in the past was to plant them closely together. I saw a great many trees in this Province this winter that were only 12 feet apart. In setting an orchard give the trees plenty of room, so that when they are full grown there will be still room for plenty of air and sunshine.

Planting.—A few people have advocated planting in the fall. My own experience and observation lead me to believe that early spring planting is the best, but when I say spring I do not mean the 1st of June. Plant as early in the spring as the ground will work; before the trees have become dried out and white. There is an abundant supply of moisture in the soil. Dig a goodsized hole; spread the roots out all around the hole and fill in with fine surface soil; work the earth well in among the roots and tramp firmly to within an inch and a half of the surface. Leave this inch and a half as a loose mulch to prevent evaporation. A few hours' extra time spent in careful planting will greatly reduce the number of dead trees in the fall.

Cultivation.—The success and profit of the orchard in after years depends largely on the care the trees receive when young. A tree, like an animal, has a life, and we can make or mar that life according to the amount of care and food we give it when young. Our farmers generally have come to realize the great importance of keeping their young stock growing right from the start; but I fear that quite a number have

yet to learn that it is equally important with the young tree. A stunted calf or colt will never make as good a cow or horse as one that has never had a check, and it is just so with the tree. If we allow it to become stunted in its early years for want of cultivation or lack of plant food it will never make a profitable tree afterwards. I believe that thorough cultivation is the best treatment for an orchard at all times, but especially until the tree begins to bear. My own practice is to use hoed crops for a few years, and then let the trees have all the ground to themselves. Give clean cultivation from early spring until the end of July, then seed down with some cover crop. This takes up some of the moisture and checks the growth and causes the wood to ripen up. This cover also makes a mulch on the ground, which protects the roots in winter—a great advantage in this section, where we do not have much snow.

DISCUSSION.

Q.—Have you a remedy for sun-scald? A.—Protect the trees on the south and south-west sides from bright sun in the month of March by putting something on the trunk, such as boards, elm or hemlock or cedar boughs.

Q.—How far apart would you plant trees? A.—Apples not less than 30 feet; better 36 or 40. Peaches, plums and pears, 18 or 20 feet each way.

Q.—How often do you plow your orchard? A.—Usually once a year; some times only once in two years. Where we use clover as a cover crop we plow it in the spring up to the trees, then work down with disc and harrow. When using barley or buckwheat for cover crop, we often work it in spring with disc and cultivator and plow up to trees the end of July just before seeding again.

Q.—We have a great deal of black knot (South Grey). Have you a sure remedy? A.—F. A. Sheppard, Queenston. Yes. We have no trouble with it now. Black knot is a fungous disease, and is spread by germs or spores that ripen on the knot, and are carried by the wind into other parts of the tree, where they take root and grow. Spraying with Bordeaux mixture to kill the spores, and cutting off and burning the young knots before they ripen seed, is our method, and we have found it entirely satisfactory.

Q.—What are the best and most profitable varieties of grapes to grow? A.—Concord, Moore's Early, Worden, White Niagara, Moore's Diamond, Red Delaware, and Lindley.

Q.—What about Japan plum? A.—They are giving good satisfaction in most sections.

Q.—What varieties of them do you recommend? A.—Abundance, Burbank, Red June and Satsuma are among the best.

Q.—Would you trim a red currant in a bush or in a tree shape? A.—I would prefer the tree shape, if I could get it, but it seems next to impossible to keep them in that shape. Our best variety, Fay's Prolific, will not grow that way.

Q.—Do currants require much pruning? A.—Yes, quite a lot. We trim in spring, cut out a portion of the oldest wood each year, and leave as many new shoots. In this way we always have a supply of new wood. Do not have your bushes too thick.

Q.—What soil is best for currants? A.—A moist, black soil. They require to be well manured if they are to yield heavy crops.

Q.—What time of year do you prune your apple trees? A.—Usually in March. I think June would be better for the healing of the wounds, but at that season of year we have not time for the work. Besides this, one can make a better job of it when the trees are bare of foliage.

Q.—Do you use wax or paint on wounds made by cutting off large limbs? A.—I use linseed oil paint; but I would rather prune a little every year and take the extra

limbs out when small. However, when you have to cut large limbs, by all means use paint.

Q.—When would you spray? A.—If for fungous diseases, twice before blossoming, and once or twice after.

Q.—Can you graft cherries? A.—Yes, but not satisfactorily. Budding is preferable.

Q.—When would you bud? A.—Latter part of July or middle of August.

Q.—How far apart would you plant strawberry plants? A.—Rows 4 feet apart and two feet in the row.

Q.—What would you do to give plum trees a start in very heavy, stiff clay land? A.—Did a good, big hole and fill in with mellow surface soil, so that the trees may get a good start the first year. After that they will likely be all right.

Q.—How far apart do you plant grapes? A.—Ten feet each way.

Q.—How many wires? A.—Two or three. I think good results may be obtained from either. I prefer two wires. I think I get just as many grapes, and there is less pruning and trimming with two wires.

Q.—What is the cause of apple trees dying on the south or west side? A.—It is what is known as "sun-scald." Early in the spring, when we have bright, warm days, the sap starts up the south or west side of the tree. Then if the temperature falls at night to several degrees of frost, the sap cells are ruptured and the bark dies on that side of the tree. Anything that will protect the tree from the direct rays of the sun at that season will be beneficial.

Q.—What do you consider the best raspberry? A.—For red, I prefer the Marlborough and Cuthbert; black, Gregg and Souheagen.

Q.—Can you do anything to prevent the black-caps from sprawling all over the ground? A.—Yes. Nip off the young canes when about 3 feet or 3½ feet high. This will stiffen the canes and they will not fall down.

Q.—What are the best varieties of sour cherries? A.—Early Richmond, English Morello, and Large Montmorency.

Q.—Have you any trouble with cherries suckering from the roots? A.—That is the case with the ordinary, common cherry, but the budded varieties, which are budded on imported stock, do not sucker.

Q.—Have you any trouble in getting your trees true to name? A.—Yes, sometimes, but not so much in later years as formerly.

Q.—What do you do to prevent it? A.—Buy from the most reliable nursery men, and cancel the substituting clause in the order sheet.

Q.—What time of year do you prune your raspberries? A.—In early spring. Take out all dead wood and thin out to about five or six good, strong canes to a hill. Then in July, when the young canes get about three feet high, head them back. That will make them stocky and will make the wood ripen better, and the danger of winter killing will be greatly lessened.

Q.—How far apart would you plant apple trees? A.—Never less than 30 feet, and better still from 36 to 40 feet.

Q.—Do top-grafted trees begin bearing sooner than those on their own roots? A.—Yes, as a general rule. I picked a heavy crop of Bartlet pears last summer from a two-year-old graft.

Q.—Would you grow a crop in your orchard when young? A.—Yes. I like a hoed crop for the first, as the cultivation is the best treatment for the young trees. I prefer corn for the first year. It grows up quickly and protects the young trees from the sun and wind, until they become firmly established. A crop of grain will not do any damage if it is kept back far enough from the trees to permit of cultivating between the

grain and the trees. After the trees get to be a good size and begin to bear, I would not think of taking off a crop of any kind. I have seen farmers take a crop of hay from their orchard annually, but as a rule that was the only crop they got. Apples were scarce. They blamed the trees for not bearing, but were themselves at fault. The trees were being gradually starved to death; no fertilizing material was being added to the orchard, and the hay crop was robbing the ground of what little plant food it contained, by taking up the moisture that should have gone to maintain and feed the trees.

Q.—What is the best time to prune. A.—A. E. Sherrington, Walkerton. March and the first part of April.

Q.—When pruning, do you cut close to the tree, or do you leave a place, say an inch long? A.—I cut close, and leave a clean, smooth surface.

Q.—Do you prefer the orchard in sod or should it be cultivated? A.—Cultivated by all means. Sod should never be tolerated.

Q.—What are the best varieties of apples? A.—Good-keeping varieties, such as Spy, Baldwin, Greening, Ben Davis and Russett.

Q.—How much can be made annually from a well-cultivated orchard? A.—From $75 to $100 per acre.

Q.—What kind of fertilizer is best for an orchard? A.—Barn-yard manure, wood ashes, or clover and ashes.

Q.—What value is a cover crop to an orchard? A.—It takes up the plant food liberated in the soil. It also pumps the moisture out of the soil, and in so doing checks the growth of the tree, causing the wood to ripen well, so that it may be better able to stand the winter frost. It also causes the fruit buds to develop to a greater extent than they otherwise would. It is also a trap to catch the leaves. The snow is then held longer and this keeps the ground warm. Then when it is plowed in, it returns humus and plant food to the soil.

Q.—When should this cover crop be plowed in? A.—During the month of May.

Q.—When should the cover crop be sown? A.—From the middle of July to the 1st of August.

Q.—What makes the best cover crop? A.—Common red clover.

Q.—Why? A.—Because it has the power of gathering nitrogen from the air and storing it up in the plant.

Q.—How much clover seed do you sow per acre? A.—From 12 to 15 pounds.

Q.—Have you ever used the hairy vetch? A.—No, but I believe it to be a valuable plant.

Q.—How much seed of the hairy vetch should be sown per acre? A.—About 5 pecks. It costs about five or six dollars per bushel.

Q.—What is the value of an orchard that is well kept? A.—A bearing orchard of good varieties is worth $500 an acre.

Q.—How is humus obtained? A.—By plowing in manure, clover and other green crops.

Q.—What are the best hardy stocks for grafting on ? A.—The Talman Sweet.

Q.—Will Spies come into bearing earlier by being grafted on Talmans ? A.—Yes, in about half the time.

Q.—At what time do you spray? A.—Just as the leaf buds are bursting, or the trees are leafing out; just before the bloom opens; when the bloom has fallen, and in ten or fifteen days after, if the weather is fine.

Q.—Will spraying destroy the black spot? A.—Yes, if properly applied?

Q.—Will spraying control the codling moth? A.—Yes, to a certain extent.

Q.—Will spraying prevent the black knot? A.—Yes, I believe it will to a large extent.

Q.—Is it right to spray when the trees are in bloom? A.—No.

Q.—Why? A.—Because you will injure the blossom and kill the insects and bees that are carrying the pollen from one blossom to another.

Q.—Does it pay to spray? A.—Yes, it certainly does.

Q.—What is the best fertilizer for an orchard? A.—G. C. Caston, Craighurst. Barnyard manure is all right if you have it, if not you can do very well by plowing in clover and applying hardwood ashes. The clover supplies the nitrogen for wood growth and the ashes furnish the potash.

Q.—What are the ashes worth as a fertilizer? A.—Good, hardwood ashes unleached are worth 25 cents a bushel, and you cannot get the same amount of phosphoric acid and potash as cheap in any commercial fertilizer.

Q.—Are leached ashes of any use as a fertilizer? A.—Yes, they are well worth looking after; they still have some potash in them, and the phosphoric acid is all there, as it is not removed by the leaching. Those two elements are very important as fertilizers for fruit trees. The potash helps to build up good, healthy wood tissue and give color and flavor to the fruit. Phosphoric acid also enters largely into the economy of the tree, and is especially important in the formation and growth of the seeds.

Q.—Would it pay to buy ashes instead of commercial fertilizer? A.—Yes, and it is a mistake to allow them to be taken out of the country and sold to American fruit-growers, when so many of our own orchards are starving for want of them.

Q.—On what soils are they most needed? A.—Sandy soils and sandy loam.

Q.—Do you advise cultivating orchards? A.—I certainly do. I consider it most important in such a climate as ours.

CULTIVATION AND CARE OF ORCHARDS.

By Harold Jones, Maitland.

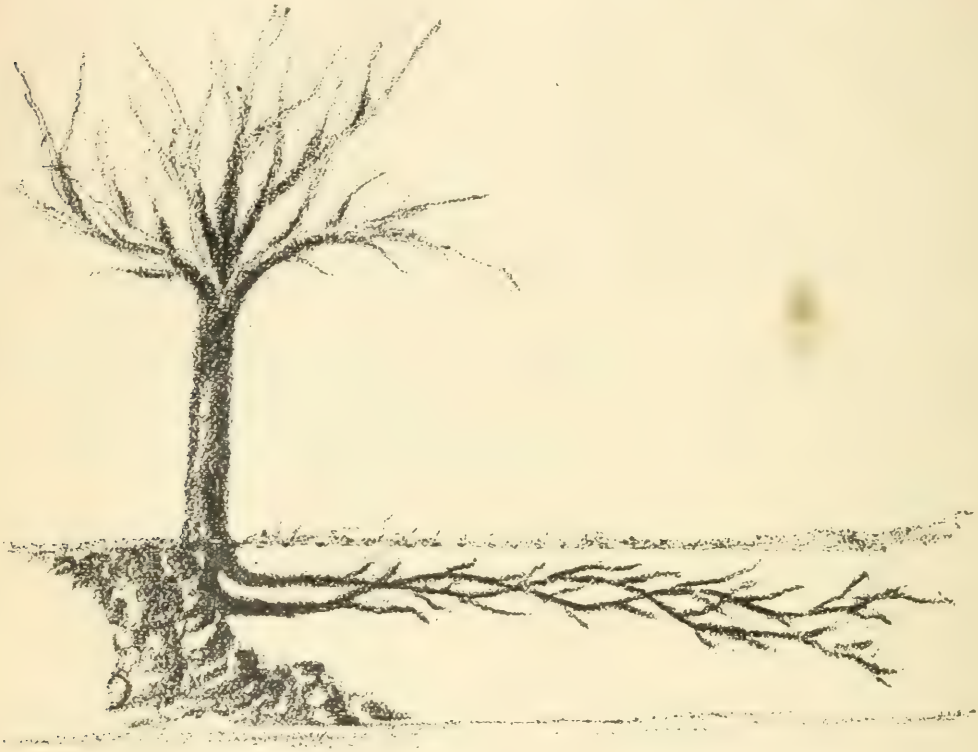
The possibilities in fruit-growing as an industry for the farmers in Eastern Ontario are greater than many imagine. The orchard properly cared for and intelligently managed might easily be one of the best paying crops on the farm, but when trees are neglected and allowed to take care of themselves, without any cultivation, spraying or pruning, they are not much of anything but a nuisance on the farm and an eyesore to the passerby.

Now, to make this industry profitable and interesting it is necessary to know something of the requirements of the trees, as regards location, soil, drainage, fertilizing, etc., as well as a knowledge of the insect and fungous diseases that prey upon the tree and fruit.

In the setting out of a young orchard the first thing to be considered is location. In the eastern part of Ontario, where you are subject to late spring and early fall frosts, it is necessary to take into consideration the question of air drainage. On still nights the colder air drains to the lowest points, or to the valleys, and is followed by the warmer air in regular succession. Take a gentle slope, either to a river bed or to a low valley, and on a still night, when there is likely to be a light frost, place three thermometers, one at the top of the slope, one half way down, and the other at the bottom of the valley. You will find on examination in the early morning that the thermometer in the valley may be several degrees below the freezing point, while those on the upper levels will be well above it. There is hardly a farmer here who has not

noticed the leaves of the corn in the valleys touched by frost, while on the hillside they will be perfectly green. Now, bearing this in mind, always try to select a piece of ground for your orchard which has a valley, or lower ground, just below it. In that way your orchard will be practically exempt from the late spring frosts at blooming time, which is the time most injury is done.

It is often said that a northern or north-western site is the best for an orchard, but in my opinion, if varieties adapted to your climate are selected, the position of the land with regard to air drainage is of greater importance than the exposure.



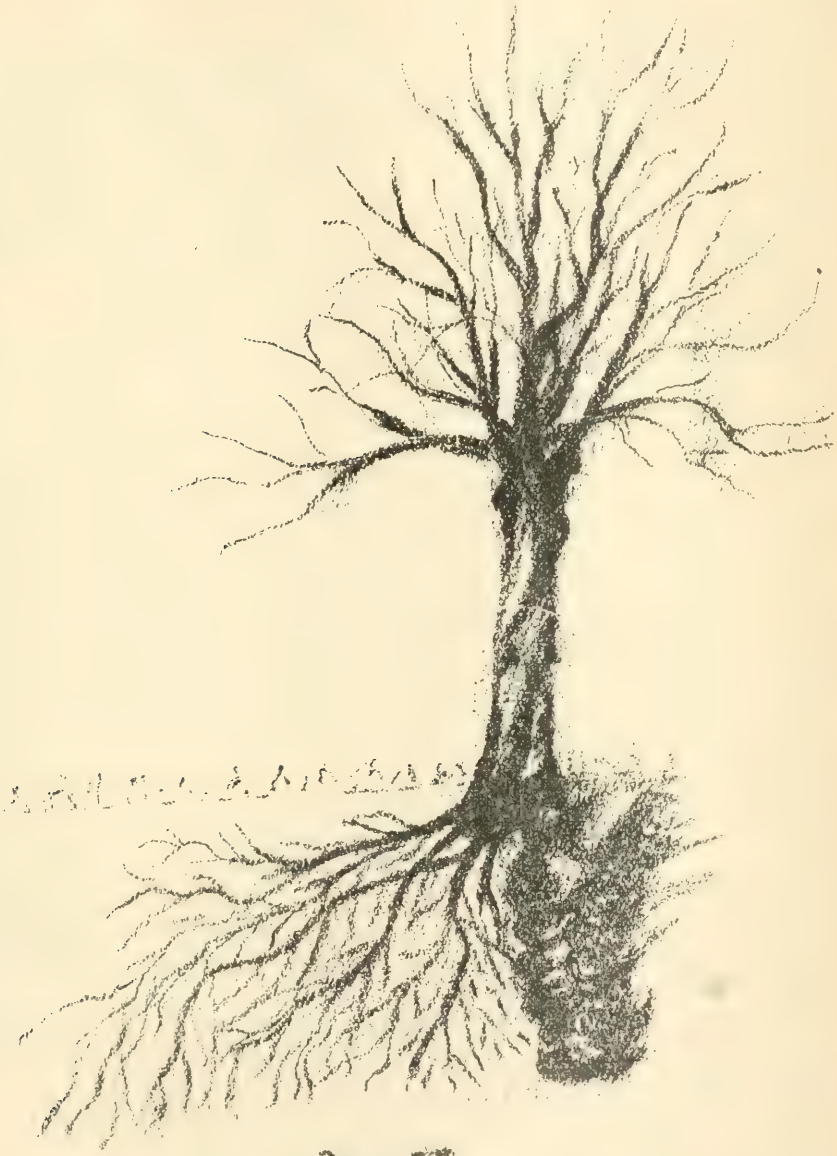
no I

Orchards succeed in a great variety of soils, but in medium clay loam they give all round the best results, provided always that it is thoroughly drained, either naturally or artificially. There is an old saying that "trees do not like wet feet." The root system requires plenty of water at all times, but at the same time the roots need air. It may seem strange, perhaps, to say that roots need air, yet every living thing, whether animal or vegetable, needs air. Even the fish must have air in order to live. As an illustration of this point:—There is marine life found at a depth of from 6,000 feet to 6,500 feet in the Atlantic, owing to the aeration of the water by the tropical streams flowing over the surface to the poles. It then cools and flows back along the bottom of the ocean, to again rise at the equator and continue the circuit. Now, in a sea where there are no known currents, such as the Black Sea, there is no marine life found at any depth.

The root system, in order to have air, must have the surplus water drawn from it from below. Naturally, when the water is drawn away, it would leave a vacuum in the

soil, but there being no such thing as a vacuum in nature, the air fills the spaces from which the water has been drawn.

Here is an illustration of two trees, one-half the root system having been exposed by washing the roots clear of soil, and showing the roots in their natural position. No.



no II

1 represents a tree in a hard, undrained, uncultivated soil. This root system in seeking plant food and moisture is found to extend for a distance of 21 feet, and at no time have the roots been found more than 8 to 15 inches below the surface, with most of the fibrous roots working upwards for the air and moisture from the summer rains. No.

2 represents a tree in deep, cultivated soil, thoroughly underdrained, at a depth of 3½ feet, with the result that the fibrous root system was found to follow down the drainage line. They were then free from injury by frost in winter and would not be affected by severe drought in summer. Now, if this drainage system were removed or clogged up, and the water level should rise, say 1½ feet, the lower part of this root system being in stagnant water and unaerated soil, would decay and die, and the tree would then suffer from "wet feet."

The fertilizing of our orchards is an important matter. While the trees are young, and until they come into bearing, crops of corn, potatoes or roots may be grown to advantage, prvided always that you supply as much fertilizer to the soil as the crop will take out. When the trees come into bearing they should be allowed the full use of the land, and the fertility must be kept up to meet the extra drain of the fruit crop from year to year. An annual dressing of eight or ten loads of barn-yard manure to the acre will keep the orchard in capital condition. Where we have to depend on commercial fertilizers it is necessary for us to know just what the land needs and how to get those elements in the cheapest possible way.

Of the eight or ten elements drawn from the soil by the tree, there are only three which become rapidly exhausted or are in the soil unavailable as plant food. These three elements are potash, phosphoric acid and nitrogen. The best possible form in which we can obtain potash is in wood ashes. An annual dressing of from 12 to 15 bushels to the acre is sufficient. Where wood ashes cannot be obtained, muriate of potash can be used with good results, sowing it on the land in early spring, about 100 to 150 pounds to the acre. The most satisfactory way of obtaining phosphoric acid is by the application of 150 to 200 pounds of dissolved bone to the acre. Nitrogen is one of the most expensive elements in all our commercial fertilizers, and is the most easily lost by drainage if not immediately taken up as plant food. Nitrogen purchased in this way costs us 15 cents a pound. The cheapest and most satisfactory way to obtain nitrogen is by the aid of clover. Clover has been found to contain over $11.00 worth of nitrogen to the acre, besides tons and tons of humus which it adds to the soil. Now, when we can get $11.00 worth of nitrogen for $1.00 worth of clover seed, and the trouble of sowing it, it is very foolish to buy it in the expensive forms.

Always spread manure over the entire surface of the orchard, and not heap it up around the trunks of the trees, as is done in many cases. This is a good deal like feeding a horse his oats at his hind legs. The tree feeds at the extremity of its rootlets, and the large roots are only the underground branches, carrying the food in the sap up to the tree.

Before we leave the subject of fertilizers I want to touch for a moment on carbon. The whole skeleton of the tree, or about four-fifths of its entire dry weight, is carbon, and this carbon (with the exception of a small portion in the form of carbon-dioxide which is present in decaying vegetable matter in the soil) is taken from the atmosphere, in the form of carbonic acid gas. This is taken through the leaves, is combined with the elements of the soil brought up by the sap flow, and then passes down, building up new cell tissue through the whole tree. Now, when we consider that there are only three parts of carbonic acid gas to every 10,000 of air, you can see how necessary it is that the foliage of a tree must be kept in a perfectly healthy condition if the tree is to grow.

If the foliage becomes affected with black spot, that portion of the leaf is of no more use to the tree as a breathing organ, or, in other words, the functions of the leaf are as entirely destroyed as if eaten away by insects. It is well, then, to bear in mind that one must spray the trees which are not bearing as well as those that are. It takes

two years to grow an apple, one year to develop and ripen the fruit bud, and the next year to blossom and bear fruit. Therefore, if the foliage is not kept healthy and vigorous, it cannot supply carbon for the full development of wood and fruit buds for fruit the following season.

DISCUSSION.

Q.—When do you spray apple trees? A.—In replying to a question of this kind, instead of giving you the dates on which I spray, it would be better for me to give the reasons for the different sprayings, and why they should be done at a certain time. You will then find it much easier to remember the dates, and will take more interest in your work, having a purpose or object in view.

1st. Spray just as the buds are bursting. By observing carefully you will notice that it is the blossom buds that open first in the spring. Now, just at this time the forest caterpillar and tent caterpillar are hatching, and the bud moth and cigar case-bearer are moving from their winter quarters. All these four insects are moving at this time to the tip of the bud where the leaf is beginning to show. These insects at this early period in their lives are destroyed by the smallest particle of Paris green, whereas, if they are allowed to become nearly full grown, it takes a large amount of poison to kill them. They also devour a large amount of leaf surface if they are not destroyed at an early stage.

2nd. Spray just before the blossoms open. This spraying is to catch the few insects that escape the first spraying. It is also very important, as you get the stem of the blossom sprayed with the Bordeaux mixture. At this time the stem of the blossom is susceptible to attacks of fungi. Now, the stem of the blossom eventually becomes the stem of the apple, and if the fungi spores take root in the stem when in that green, fleshy condition, the apple will never form.

3rd. Spray just after the blossom falls. This is the most important spraying, because it is at this time that we can protect ourselves against the ravages of the codling moth. In spraying right after the blossom falls, the calyx or blossom end of the little apple, is wide open, and the apples, in nearly every case, are standing with the blossom end pointing upwards, so that each little apple will receive a drop of the poisoned spray right in the calyx. Within a few days the calyx lobes close up tightly and hold the little particles of poison. When the apple is about the size of a small cherry the codling moth lays a small, semi-transparent egg, like a minute fish scale, somewhere on the surface of the fruit. In a few days a tiny little worm hatches and crawls to the blossom end of the apple, and in between the calyx lobe. If the poison is there waiting for him his first meal is his last. Here in Eastern Ontario we have two distinct broods; the spring and mid-summer broods. However, if our spraying is done carefully to catch the first brood, there is seldom, if any, trouble with the second.

The three sprayings mentioned are very important, and if neglected subsequent sprayings are of very little avail. When the Black Spot is very troublesome, and where conditions favor its growth, it is wise to follow these three sprayings with a fourth and fifth at intervals of two weeks. In every spraying use Bordeaux mixture and Paris green.

GROWING APPLES.

By A. W. Peart, Burlington.

The general outlook for the apple grower appears to be bright. Apples are the staple fruit of Canada; their consumption is increasing in a greater ratio than even a growing population, and new markets are being constantly opened for our surplus.

The Canadian Northwest, rapidly becoming more populous, will demand more and more fruit; with the wider use of the box package, the less wealthy classes in Great Britain are given opportunities to purchase; while the European markets are beginning to appreciate the quality of our apples by placing larger orders in Canada.

It appears to be an axiom that the farther north any natural product can be successfully matured, the higher the quality, and hence the deserved reputation of the Canadian apple.

Soils and Situations. It has often been said that southern and south-western exposures for an apple orchard are the least favorable. While that is true, if the soil and other conditions be favorable, the exposure is not of vital importance. Apples thrive on a wide range of soils—sandy, gravelly, and light clay loams being well adapted to their growth. I would not care to plant an orchard on a heavy clay, nor yet a light sand. The former is too stubborn for a good growth of wood, while the latter is too hungry for food. Neither would it thrive on a shallow soil with a rock bottom or a deep subsoil of gravel. In dry seasons the trees would suffer through lack of moisture. Apples will not prosper in a wet soil. Should portions of the orchard be too damp, tile drains may be laid, equidistant from the rows of trees as far as possible.

Selecting and Planting Stock. Buy the very best trees possible. An orchard is not a thing of a few months, but a matter of a lifetime. As a rule, three-year-old trees are about the right size, being neither too small nor yet too large. Beware of trees showing unhealed scars of previous pruning in the nursery. Usually they have a black heart, and are consequently no good. Select thrifty, growthy, stocky trees, with straight, clean trunks, free from disease and insect pests.

The very general mistake has been made throughout the Province of planting trees too closely, often 20 and 25 feet apart. Barring a few light-growing varieties, the ultimate result is a mass of almost worthless fruit. Trees should be planted from 35 to 40 feet apart, according to the nature of the soil. A tree is something like a man—it must have scope to do its best work.

Before planting cut away obliquely, underneath, the bruised ends of the roots, and cut back the top from half to two-thirds, to correspond with the roots. Trees should be planted three or four inches deeper than they were in the nursery. Work in the finest and best soil closely around the roots and small rootlets, and place the poorest earth on the top. Tramp carefully so as to avoid air spaces and consequent drying out. I prefer spring planting of all kinds of nursery stock. There is less risk. The process of dry freezing sometimes injures trees planted in the fall.

Cultivation. Never allow crops of any sort to grow immediately next and around the trees. They take the food and moisture. Grow any crop you like in a young orchard, but always leave a space to cultivate on either side of the row of trees. This space must be left wider as the trees grow older, and in the course of ten or fifteen years, when they require to use all the soil, grow no other crop but apples, save for cover and fertilizing purposes.

Cultivation, in addition to keeping the ground free from weeds, checks evaporation, unlocks plant food, and your trees will push ahead strong and vigorous. Should they be growing too fast, stop cultivation. As a general rule, conditions favorable to a strong growth of wood are unfavorable to fruiting; while, on the other hand, conditions favorable to the production of fruit are unfavorable to the making of much wood. When an orchard reaches maturity, study its requirements and handle it accordingly, whether cultivation or non-cultivation, fertilizing or non-fertilizing.

In districts along the Great Lakes where there is little snowfall, cover crops such as clover, rape, peas or vetches, should be sown in the summer or fall—according to the

crop used—to protect the roots during the winter. Plowed under in May, these also enrich the soil.

Pruning. Pruning is absolutely necessary to get good fruit. I form the head from 3½ to 4½ feet from the ground, according to the habit of the growth of the tree. This is high enough to permit horse cultivation, and yet sufficiently low to shade the trunk from the sun. The head should be made of three or four main branches, and never of two. With the latter, an ice storm or a heavy crop would probably split the trunk and ruin the tree. Suckers, cross and superfluous limbs, should be removed every year, the aim being to have a well-balanced, evenly-distributed, medium-open top.

If you wish to increase the size of the apples on a given tree, prune it severely. We prune at any time during the winter, provided the wood is not frozen. Were we to leave it until June, it would probably not be done. The great point in pruning is to determine the main branches of the tree when it is young, and afterwards, year by year, thin out the wood. In this way the nourishment of the tree is not wasted on useless limbs, but is devoted entirely to the formation of necessary wood and fruit varieties.

It is dangerous to recommend varieties of apples as suitable for any district other than one's own. This is due to the variation in soils, situation and climate. In the Burlington District the Duchess for summer, the Ribston Pippin for fall, and the Baldwin, Greening and Spy for winter, are probably the most profitable. The latter, as well as the King, should be top-grafted on some suitable stock, such as the Talman, to induce earlier fruiting.

I would not like to do without a few trees each of the Wealthy, King, Pewaukee, Ontario and Gravenstein, to supplement the main varieties. The price at which the King sells—the highest of any apple—in a measure compensates for its lighter productiveness; and there is no fruit grown around here which is sought after in its season for eating out of hand like the fragrant Gravenstein.

In setting out a young orchard, the best plan is to find out what varieties have proved the most profitable and satisfactory in your own locality, and then plant accordingly. In a commercial orchard do not plant many varieties, and fewer new and untried ones, thus saving yourself disappointment.

Manures. Orchards, like animals, to yield a profit, must be fed. Stable manure promotes a strong growth in young trees. For trees in bearing there should be a judicious application of those foods which encourage fruit and wood. Humus must be kept in the soil to support moisture. Stable manure, clover, peas or vetches, plowed under in the spring, not only retain moisture, but give growth to the wood and size to the fruit. Wood ashes rich in potash, phosphoric acid and lime, promote the formation of fruit buds and give firmness, quality and color to the fruit. A dressing of lime every few years sweetens the soil, and makes other mineral foods more accessable for the roots. In using fertilizers we should consider the nature of our soil. Clay soils, for example, are naturally rich in potash, while sandy or gravelly loams are somewhat deficient in it. Ashes, then, should be used on the lighter soils, and nitrogen, in the form of stable manure or one of the leguminous crops, on the heavier ones. Twenty-five bushels annually per acre would be a good dressing of ashes, evenly scattered over all the ground.

DISCUSSION.

Q.—What class of apples should we plant? A.—A. W. Peart, Burlington. For commercial purposes, apples from medium to large, red, good shippers and good quality.

Q.—What about the future of the Ben Davis apple and the Keiffer pear? A.—The chances are that the consuming public will become more and more critical as time goes on, until finally the above varieties will disappear before those of better quality.

Q.—Does it make any difference where we get scions for top-grafting? A.—Yes, scions should be taken from healthy, productive trees, which have a first-class record. Even varieties appear to have families, and we should select from the best family. Each apple-grower knows his best tree of Spies, Baldwins, etc. Scions, too, should be taken from the last year's growths, at the extremities of the limbs. Soft, immature suckers should be avoided.

Q.—Do you take two or three years to top-graft a tree, or do you do it all at once? A.—I do it all at the same time, then gradually remove the original wood year after year, taking three years to do it. The grafts then grow firm and strong, but not too vigorous, and by the end of the third year you will have a thrifty new top.

Q.—Will a top-grafted tree bear younger than the same variety on its own stock? A.—In my opinion, yes, a few years earlier, as, for example, the Northern Spy.

Q.—Would it be more productive? A.—That is a question. Greater productiveness would, however, be the tendency.

Q.—In pruning an apple tree, should the centre be cut out? A.—I try to thin out the branches of a tree so as to leave the limbs as evenly distributed as possible, but never make the top like a cup, hollow in the centre. The sun in July and August strikes the limbs, and borers are apt to get in.

Q.—Should rough bark be scraped from the trunks, and when? A.—Yes, but do not scrape deeply enough to expose the white bark. Probably the latter part of March would be a good time.

Q.—What about the future for apples? A.—I think it is good. Apples may be considered a staple commodity. As our Canadian Northwest becomes more populous, the demand will increase for apples. Then the British and European markets are gradually requiring more, at profitable prices to the Canadian grower. Increased consideration, however, must be given to better packing and improved transportation facilities.

Q.—Can Red Astrachan apples and Clapp's Favorite pears be successfully exported to the Old Country? A.—Yes, the Burlington Export Association last August exported these fruits in cold storage to Liverpool with success.

Q.—Does it pay to go to the expense of putting in tile drains? A.—Yes, in low, wet soils that are of little use in their present condition. Broadly speaking, tile drainage costs from 45 to 55 cents per rod, or the same figures in dollars per acre. Through the increased returns from crops, this will be repaid in five or six years; then it is a pure gain.

Q.—How long will a tile drain last? A.—We have drains laid thirty-five years ago that are doing as good work as ever they did.

Q.—What are the chief points in draining? A.—Use No. 1 tile, have a good outlet, the last outlet tile being a long, wooden one. Be careful to have a uniform grade in the bottom of the drain, and get all the fall that you reasonably can, but the less the fall the larger the tile should be. An inch to the rod is an excellent fall, but I would drain if necessary on an inch to two hundred feet.

Q.—How should stable manure be applied to the soils? A.—Apart from other considerations, and speaking in a general way, it should be plowed under in the heavier soils, and worked in from the surface in the lighter ones in order to improve the texture of the former, and to enrich the latter. The former are cold soils and the latter warm.

Q.—How deep should we plow? A.—That depends upon the time of the year we do it, the depth of the surface soil, and the nature of the crop we are plowing for. I plow from four to seven or eight inches deep according to circumstances.

Q.—Do you grow mangels? A.—Yes. I plow the patch in the fall, turning in man-

ure if the soil requires it. Then in the spring we surface work deeply to form a warm granular seed bed. We put in the seed with a grain drill on the level, the rows five spouts apart (thirty-five inches) about four pounds to the acre, and thin the young plants out from fifteen to twenty inches apart. We make surer of a catch than by plowing up rows.

Q.—Have you grown the grass pea? A.—I grew it last year for the first time. I mixed 1¼ bushels of grass peas with ½ bu hel of oats, and the yield was forty bushels per acre of a good mixture.

Q.—Have you had any experience with the "Ontario" apple? A.—A. C. Hallman, Breslau. Yes. It is an early bearer, but will die at eighteen or twenty years of age. It is, however, just as good as the Spy, and should be grafted on the Talman Sweet.

Q.—How would you destroy ants in an orchard? A.—The best way and the surest way is to catch a toad and place it under a box or a crock directly over the ant hill. In two days there will not be an ant seen. I can guarantee this method, as I have tried it and know of what I talk.

HANDLING AND MARKETING OF FRUIT.

By Elmer Lick, Oshawa.

The first thing is to have a choice lot of well-grown fruit. The handling and marketing is then a pleasure. There is little satisfaction of handling poor, trashy fruit. The markets of the world require large quantities of high-grade fruit, carefully picked and handled, wisely graded, well packed, uniform in quality, promptly shipped after packing, and shipped in reasonable quantities to all the available markets of the world.

When picking fruit do not handle it roughly. Keep in mind an egg, rather than a stone or turnip, and handle accordingly. Do not throw even the filled barrels around roughly. Put up a strictly No. 1 grade and a good No. 2 grade. Face the barrels with a fair sample of contents. Remove the stems from face apples by cutting. Place them in the barrel tightly, stem down. Fill barrel with carefully-sorted apples, one basket at a time. Jar the barrel after each basket is put in. When the barrel is almost full level the surface, put in a padded racker, press on this with the hands or elbows, rocking the barrel back and forth on a firmly-placed plank, not more than ten inches wide. When this process is over arrange the tail apples either stem, blow or side up so that there is a level surface to put the head on. The tail apples should not be more than one-half inch higher than the end of stave. Press the head in with a screw press, using a circular iron head block, about 15 inches in diameter. It is well to stop when the head is about half-way down and rock back and forth two or three times. This assists the apples in finding their places. Before any fruit is put in, the barrel should be headlined and quarter-hoops carefully nailed.

After pressing, the tail end of barrel will be headlined and hoop nailed. Use plenty of nails, especially if for export. If the barrel or box has not been branded before fruit is put in, do it now. Be sure to stencil on the initials of the Christian names and full surname and address of the owner of the fruit; the name of the variety, and for fruit of the first quality, No. 1 or XXX; for fruit of second quality, No. 2, or XX; for fruit of third quality, No. 3, or X. Always be careful that in all kinds of fruit, in all styles of packages, that the faced or shown surface fairly represents the centre of such package. Make fruit in packages marked No. 1 or XXX. strictly No. 1. Having done as above indicated, you need have no fear of the "Fruit Marks Act."

After packing a number of barrels, go back to one of the first barrels and open tail end to see whether you have done much damage. The apples should not be broken or

crushed. Care should be taken to have every barrel of the same grade and variety in the same shipment perfectly uniform. This will help to establish confidence in a brand.

After packing, the barrels should be drawn to the station on their sides, and better on springs. Ship promptly after packing, especially with fall and soft varieties. For best appearance and results apples should not be piled on the ground. Either grade and pack at once or take them to an open shed either in barrels, crates or baskets. Apples packed in tight barrels when temperature is over 65 or 70 degrees are almost certain to sweat and ripen very rapidly. To assist in avoiding this, leave fruit open over night and head in morning.

Producers must take more interest in the marketing of apples; must grow more good fruit; must pack carefully; keep barrels, whether empty or full. Where a producer is likely to have 200 barrels or over he should learn to pack the fruit and do it right. There is too much carelessness in the handling and marketing of apples. More care and thought will ensure our producers better prices.

The apple crop of this country is handled in four principal ways:

(1) Where the dealer buys all over the country, changing from year to year.

(2) Where the dealer handles practically all the fruit in his locality.

(3) Where the producer packs and ships on consignment.

(4) Where a number of producers co-operate and handle their fruit together, either selling to large dealers or shipping on consignment.

All of these four methods have their advantages and are useful and helpful to the fruit trade of this country. The success or failure of any of these methods depends on the men who do the managing and work. The best method is the one which carries out most thoroughly the main principles outlined above.

DISCUSSION.

Q.—What is the best time to prune? A.—Elmer Lick, Oshawa. The month of June, or during the growing season is no doubt the best time to prune, as the wounds begin to heal at once and in addition fruit buds are encouraged. The most practical time for farmers who will be busy in June is in March, when there is no frost. A farmer can find time to prune quite a large orchard in this way.

Q.—How much should I prune an orchard that has not been pruned for years? A.—Do not allow more than one-fourth of the living top to be taken out at one time, in fact, it is far better to keep the quantity taken out down to one-sixth or one-eighth. If too much is taken out at once the balance between the root and top is disturbed to a serious extent, resulting in an abnormal growth of water sprouts and sometimes in a diseased condition of the tree. Better leave the tree too thick than run chances of these results.

Q.—How would you prune a tree? A.—Cut large limbs with a saw and cut them close, smaller limbs with a saw, shears or knife. I like to see all limbs cut close when they are over three-quarters of an inch in diameter, as they will heal more quickly; for the smaller ones it does not matter so much.

Q.—Would you tell us how to regulate the top of a young tree so that it will not spread too rapidly? A.—If a tree is growing too rapidly in any direction, check the growth by cutting off a portion of the last year's growth. Usually this is more necessary in peaches or plums than in apples. By using care in cutting close to buds which point upwards the top may be gradually raised in a tree that is low spreading, and in upright tops have the bud nearest the point cut downwards and outwards.

Q.—What shall I do with some young Spy trees with bad crotches? A.—If the

trees are very small it may be advisable to cut off all except one limb and start a new top. If that is not best, then twist two small limbs or water sprouts together, and they will unite and form one living limb between different parts of the tree. Or up near the top cut off a small portion from two limbs and tie together, or graft them. In larger trees bolts may be used, either through the trunk or higher up, or a small iron rod up in the limbs is a very good way, having nuts at both ends of the rods and a good-sized washer.

Q.—What would you do where limbs have been cut off two or three inches long? A.—I would cut them off closer.

Q.—Will a wound heal over anyway? A.—Certainly, if the tree is in a healthy condition and growing freely. Nature plans to cover all parts of the tree with bark as a protection against decay and evaporation.

Q.—What varieties should a farmer plant? A.—A farmer in Middlesex County, who is following mixed farming, should plant only winter varieties of apples. In selecting the varieties choose as a rule red varieties of good quality. Remember that for all markets the appearance counts for a great deal. In our American markets quality counts very largely. Combine both as much as possible. On your heavier soils the Baldwin is a very good apple. If you can plant Talman Sweet and top-graft to a Northern Spy, using scions from a tree that has been in the habit of producing fairly good fruit of good color, and in large quantites, you will be able to raise a fair crop inside of ten or twelve years.

Q.—What about the Ben Davis? A.—It is an apple of good appearance, and always lands on markets in good shape. On heavy soils it does not do any too well. If you stop and consider that about one-half of the young trees planted in Ontario during the last few years are Ben Davis, and if you listen to the murmuring against its quality you will hesitate before you plant largely of this variety.

Q.—What soil is best suited for an orchard? A.—Any well-drained soil is all right, but usually a clay loam of good quality will give best results. I think a northern exposure preferable to a southern or south-western.

Q.—How can I make an old orchard bear? A.—There are several reasons why an orchard does not bear; usually, however, an orchard will bear if well cultivated, manured and pruned. In short, the best cultivation for an orchard is to plow as soon as seeding is over in spring, follow this with cultivating and harrowing at intervals, until about the middle of July, when a cover crop of buckwheat, rape, etc., should be sown. Use clover every three or four years, sowing it about the first of July when the soil is moist. For manure give six or eight loads of good barnyard manure per acre every other year. About one-half bushel per tree of good wood ashes, applied the year that the manure is not put on, will give fertility.

Q.—My orchard is too low set. How am I to cultivate? A.—If you can furnish strawy manure sufficient to act as a mulch, and thus keep grass down pretty well, you can then get along without cultivation. On small orchards of an acre or two this plan works well.

Q.—My apples were scabbed last year; will spraying do them any good? A.—Yes; but the mixtures must be properly made and properly applied.

Q.—Will it pay to spray? A.—That depends on several conditions. If a man has a small orchard of several varieties, say eight or ten, and mostly inferior fruit, then it does not pay. If a man has a large orchard of good varieties, and he has cultivated, manured and pruned well, then spraying is bound to pay, and especially with such varieties as Snows, Bellefleurs and R. I. Greenings. I said a moment ago that it was important to mix materials in the best way and apply also in the best way. In mak-

ing Bordeaux mixture, take four pounds of copper sulphate and dissolve in hot water in a wooden pail. Slake four pounds of fresh lime, add water and make a thin milk of lime, strain carefully. Then take a coal oil barrel, with a good pump attached. (A good pump is one that will give 85 pounds or over pressure to the square inch, and having an agitator that will keep the contents of the barrel thoroughly mixed.) Having the barrel and pump in readiness, fill the barrel at least one-half full of water, add the copper sulphate solution, then add the strained milk of lime, stirring rapidly while doing so, and fill the barrel up with water. Usually we try and reach insects at the same time, and for this purpose we use four ounces of Paris green. If you are sure that it is pure, this will be enough, but it is a surer way to use eight ounces mixed to a paste, pour the Paris green into a bottle and then fill almost full of water, put in the cork and shake, and when it is thoroughly mixed add this to the Bordeaux mixture.

In applying this mixture, have an extension-rod bamboo pole and rubber hose, so that every part of the tree may be reached. Use a fine spray nozzle, and aim to cover every part of the tree with a fine film of the mixture. Usually we are told not to let any part drip, but in practice it will be found necessary to allow some parts to drip, otherwise all parts will not be covered. After using a barrel of the mixture, wait until it has dried on the trees, and then examine carefully the first and the last tree done. If you find an even color, indicating a uniform distribution, you have done good work.

Apply the first time while the buds are swelling, second before the blossoms open, and third immediately after blossoming is over, and follow this at intervals of about ten days, depending on the season and the varieties.

Q.—Spraying is too much trouble, and we cannot get help to do it? A.—If your orchards are small or you are busy, why not secure help from some of the neighbors' boys, who might do spraying for quite a large section?

Q.—What is the use of growing apples? When we have a crop no one wants them. A.—Good apples are always in demand, and No. 1 fruit will always demand a good price, while No. 2 will not be worth much now. I suppose you are waiting for buyers. If such did not come into your section, why not pack and ship yourself?

Q.—We only have a few barrels. A.—Then, why not co-operate and ship a car together?

Q.—We have never packed apples and do not know how. A.—Why not hire some one who is posted to put up the fruit for a whole section. It would seem that producers could co-operate and hire just as well as dealers.

Q.—What is considered to be a No. 1 apple? A.—The Fruit Marks Act says:

"6. No person shall sell, or offer, expose or have in his possession for sale any fruit packed in a closed package, upon which package is marked any designation which represents such fruit as of No. 1 or XXX. finest, best or extra good quality, unless such fruit consists of well-grown specimens of one variety, sound, of nearly uniform size, of good color for the variety, of normal shape, and not less than ninety per cent. free from scab, worm holes, bruises and other defects, and properly packed."

The Inspectors have been more lenient than the strict letter of the law, and have often thought that too many people did not understand what No. 1 fruit should be.

Q.—What is No. 2 grade? A.—Anything that is not No. 1. Remember that only a good grade of No. 2 should be shipped, however.

Q.—When should apples be picked? A.—When the seeds are brown or black and the fruit has its best color. This, of course, applies to winter varieties. Earlier fall varieties must often be picked when the seeds are turning brown.

Q.—Should apples be packed immediately after picking? A.—Usually it is best to sort and pack at once. However, if the weather is 65 or 70 degrees, it will often pay

to wait until morning to head the fruit. Apples should be kept off the ground and should be kept dry. Pick carefully without bruising; grade wisely, making No. 1 strictly No. 1; face No. 2 honestly, making a good grade of No. 2; use care in putting the fruit snugly into the barrel, use a racker and press so that the fruit will carry well, and you will not regret it, for the price will make it worth your while. Draw to the station on side, not on the end, and ship promptly after packing, taking care not to have over three varieties in one car. All these things add to the value of the fruit crop.

SMALL FRUITS.

By S. H. Newman, Owen Sound.

If you ask the average farmer, "Why do you not give more attention to small fruits, such as strawberries, raspberries, currants, gooseberries, etc.?" the answer usually is: "Well, I have more now than I can attend to properly. I cannot be bothered with them; I cannot spare the time from the more important work of the farm." If you could only convince the farmer that financial results at least as profitable, could be secured from an investment of this character, as from any other farm enterprise he engages in, we might hope that attention would be aroused in this direction.

The list to which we give the comprehensive term "Small Fruits" is understood to include strawberries, raspberries, gooseberries, blackberries, currants, grapes, etc. The juneberry, the cranberry and the huckleberry, which are now to be found only in the wild state, may some day be added to the list, but these cultivated varieties just mentioned are the "small fruits" of commerce.

A note of warning might be sounded here in reference to a few marvelous (?) varieties which some of our nurserymen are heralding in their catalogues with a great flourish of trumpets, such as mulberry, strawberry-raspberry, Eleagnus longipes, and a few others. Those who know them will tell you to let them severely alone; they will disappoint you. The mulberry is tasteless and flat; the strawberry-raspberry (so-called) has no apparent relationship to either the strawberry or the raspberry, and it is misleading to give the impression that it is a hybrid from these two excellent fruits, as the quality is very indifferent. I took home three of the ripest and finest looking berries and divided one of them among a family of seven, and each of us felt that we had more than enough.

It is a hopeful sign that some of our farmers are beginning to see the advantage of growing a supply of small fruits for their own use. Nice, fresh, ripe fruit may be had by the farmer for his table for at least four to six months of the year, a luxury to be had very cheaply, and which will add very materially to the health and enjoyment of the family. But, it may be asked, is it advisable that farmers, as a rule, should undertake the growing of small fruits for market? Well, that depends on their distance from a market town, as well as the extent of the demand. I suppose that if farmers, generally speaking, engaged to any extent in small fruit raising for market, the problem of over-production would speedily confront us. There is very little danger, however, of over-production, especially in the more northerly counties in our Province, for many years to come, as there will be a continuous demand in the developing towns and cities of New Ontario, as the tide of settlement pours in there. Besides this, local demand is everywhere increasing year by year. People are being educated to a more generous use of healthful fruits. Under these circumstances, therefore, the farmer who lives within a radius of three or four miles of a good market, and who will devote an acre or more to the cultivation of a full line of small fruits, will be surprised at the assist-

ance they will render him in solving the problem, "What shall we eat, and wherewithal shall we be clothed?"

I would say to the fathers and older brothers, Prepare the plots of strawberries, raspberries, currants, gooseberries, etc., for the junior members of the family; give them the care of these; give them an interest in the financial results of their labor; let them develop the commercial instinct and business management by having the care and control of the fruit; and I venture to say that the drain on the "family" purse will be very materially lightened.

Of course, the question which chiefly interests us in any enterprise is, "What financial returns may be reasonably expected from a given outlay?" Answering that from personal experience, I would say, that about 3,000 to 5,000 quart boxes of strawberries, as a minimum, should be obtained from an acre of strawberries, with fair cultivation. This amount is sometimes doubled, and even trebled—not to speak of the fabulous yields we sometimes hear of. A. J. Wright, of Lakefield, tells us of having seen 375 quarts taken off a plot of ground seven yards by seventeen, which would represent over 15,000 quarts per acre. The late Rev. E. P. Roe, a very successful strawberry grower, says that the man with only one square rod of land can use it to best advantage by planting it with strawberries. Of course, he had the advantage of a New York market, with select customers, wealthy, fastidious people, who were not particular how much they paid for a luxury, as long as they got what they wanted.

To the settler on a new farm, however, the question of small-fruit raising appeals especially, inasmuch as it enables him to supply his family, within a year or two, with an abundance of the best varieties of healthiul small fruits, until he gets into a position to plant out the larger fruits, such as apple, pear, plum, peach, etc.

Strawberry plants come into bearing the year after they are planted, while currants, gooseberries, raspberries, etc., should produce good crops two or three years after being set out.

In regard to strawberries, let me say a word as to varieties. There are :—

Wilson—The old stand-bye for shipping long distances.

Crescent—Early and productive.

Splendid—Large, productive and deserving of its name.

Williams—Heavily grown for market ; a good berry.

Clyde—The most productive berry I have ever known.

Wm. Belt and Marshall—Monstrous in size and of superior quality.

If time permitted, I might mention others of varying degrees of excellence, of which there are a great number.

Next in importance to strawberries come raspberries. With such productive varieties as Thompson's Prolific, Cuthbert, Shaffer's Colossal, Golden Queen, etc., a new era has opened up in raspberry culture. An acre requires about 2,000 plants, which should be reasonably expected to produce over 3,000 quarts when the bushes are three years old. This is a very reasonable estimate, as I have doubled it with even indifferent treatment. The amount realized will be governed by the price obtained per quart. Six to eight cents per box, wholesale, is a common price.

Several new varieties are now bidding for popular favor. Loudon, Columbian, Eureka and Miller rank among the best. It is astounding to see the loads of fruit the Columbian and Loudon are capable of producing.

Next we might briefly refer to gooseberries. For ease of cultivation, good and quick returns, the gooseberry takes an honorable place. There is still a fair demand for this fruit, although it is certainly falling off of late years. Nevertheless, being so hardy, it is eminently suited to cold climates, where tender fruits would fail. It is

sometimes attacked by mildew, and always by the everywhere-present slug. Still, with hellebore and potassium sulphide, the worm which infects it can easily be kept in check. Continuous vigilance is the price of success. The Josselyn is, I think, the best gooseberry I know of. It is said to be absolutely free from mildew. Other good varieties are Downing and Smith's Improved which are fairly large, and the Houghton, which, though somewhat small, seldom or never mildews, and you can generally depend on it for a full crop.

Currants, which, a few years ago, were almost driven out by the ravages of the worm, are again coming into favor with cultivators, and generally prove profitable when grown on suitable soil. The three requisites for currant growing are, depth of soil, fertility (that is, plenty of manure), and moisture. They will rarely succeed on light, sandy land; nor on land easily affected by drought. In varieties I would recommend the White Imperial; in red, the Cherry, Fay's Prolific, and the Ruby; while in black varieties I have never had anything to equal the Black Champion. Lee's Prolific and Old Black English have their admirers. There are other black currants, such as Victoria and Black Naples, which I have not yet thoroughly tested.

In Blackberries (the popular name is "thimbleberries"), the Lawton probably has possession of the market. It is a large, sweet berry, and a good shipper. Rathbun is a comparatively new applicant for favor. It has the advantage of being unusually hardy, large and very productive.

Grapes. In this northern part of the Province, it is needless to say that grapes do not generally prove prolific or profitable. Occasionally there will be a favorable season, when they will mature reasonably well, but generally, we have the demon of frost to contend with, both late in the spring and early in the fall. Even in our most successful seasons we cannot compete with the vineyards of the southern part of Ontario. As you are well aware, carloads of grapes reach our town, selling at prices far below what it costs us to grow them. It would be quite possible to grow some of the early varieties for family use, but it would be folly to undertake grape-growing for profit in the vicinity of Owen Sound.

THE FARMER'S FRUIT GARDEN.

By George H. Buckrell, Springford.

While we are not going to discuss the question, "Does it pay the average farmer to grow his own small fruits, and does he take proper care of them when planted?" I will briefly outline a few of the general principles of "Small Fruit Culture." Having decided that you are going to have some small fruit for home consumption, you must make up your mind to properly care for them, for unless you make up your mind to do so, you are very apt to be disappointed in the result, as it is just as sure that you will eat your "fruit" by the sweat of your brow, as it is your "bread." The first thing to be taken into consideration is the soil required; for myself I prefer ground that has had a hoed crop the previous year and that has been heavily manured, as that will have a tendency to clear the ground from weeds, and place the soil in good condition for the plants.

As the strawberry is the first of the small fruits to ripen, we will talk on that subject first. It is very essential that the soil be thoroughly worked; having done this, my plan is to mark the rows, three and one-half feet apart, and plant the vines two feet apart in the rows. I am very often asked the question, "Which are the best varieties of strawberries to plant?" In answer to this question, I might say, to the ordinary

farmer, who is planting for his own use, to go to some local dealer, who is raising strawberries for profit, and he will be able to tell you what kinds would be best suited to your soil ; but whatever you do, do not make the mistake of getting your plants out of some old patch, just because you can have them for the digging. You may make the mistake I have known many others to make, namely, that of digging all pistillate varieties, and thus getting berries which did not amount to anything. The small amount that it will cost you to get plants from a reliable grower should never be grudged. Get good strong plants, not the last season's growth, but those near the parent stem. Having secured your plants, and someone to assist in carrying them while planting, take your spade and open the earth along the row ; remove the spade from the opening and have the assistant place therein the plant, being careful that the crown is not placed below the level of the ground ; thoroughly press down the earth with your foot (in this way you get the roots of the plant in proper shape in the earth), and as soon as you have finished planting, go over the patch and loosen the surface soil in order to make a soil mulch. As soon as the blossoms appear on the young plants, remove them, and this will give the plant more strength to form other plants, as it is better to have a thrifty patch next year, than a few berries this year and very weak plants. Many fruit-growers also remove the first runners, as this forms more fruit stems and gives the plant strength. When the runners have made a good start, it is advisable to go over the patch and stretch them out in different directions, so that they will not be wound together, and take root in clusters. By placing a little earth on the runner near the young plant, it will soon take root.

Having taken care of your patch of berries until the fall, if you will give it a liberal dressing of wood ashes it will be very beneficial, and after the ground is frozen cover them with clean straw, corn-stalks or anything else of this kind that is free from weed seeds. The following spring remove a portion of the mulch, if it is thick, placing it between the rows, but leave enough around the plants to prevent the berries from getting dirty, as a result of the rain driving the soil on them. If you will follow out these few suggestions, I have no doubt that you will be well repaid for the time and expense you have been put to, in the enjoyment of having a bountiful supply of berries all the season.

We will next mention the raspberry. What has been already said regarding the soil for the strawberries is equally applicable for raspberries or blackberries. In planting raspberries for garden cultivation, they may be placed somewhat closer together, than for field cultivation. If you intend to grow them in a hedge form have the rows about five feet apart and plant the bushes about one and one-half feet apart in the row. The better plan is to furrow out the ground with the plow, and while one drops the bushes, another makes small mounds in the furrow, and sets the plants on top of the mound, so that all the roots are slanting toward the bottom of the furrow ; cover quickly, a trifle deeper than they were before being taken up.

Although I quite often plant in the spring, I believe that the fall is just as good and possibly better for raspberries or blackberries. Having finished planting, see that the furrow is all filled in, and tramped down, and you are ready to commence cultivation, but be very careful not to disturb the plants. When the young plants have grown about eighteen inches high, pick out the tops of the young canes, and just here I might say that the plant which you have set should be cut back at the time of planting, leaving two or three buds above ground. Of course you will not expect any fruit that season, and but a small amount the following year. There is a difference of opinion regarding the care of the bushes after this. Some prefer to allow the bushes to grow tall,

and cut them back in the spring, while others cut the cane to a height of four feet. I prefer, in the summer, to cut back the bushes to about four feet and also to remove all dead wood as quickly as possible after picking. This wood should be burned at once in order to get rid of any insect which might harbor therein.

As to varieties, for red I prefer "Cuthbert"; for black "Gregg." The "Shaffer's Colossal" is also a good berry, but on account of its purple color many do not like it. For canning, however, there is none nicer.

I think every farmer's garden should have some currants and gooseberries. These should be planted about four feet apart in the row. Shorten back the young growth each year about one-third, and remove a portion of the old wood; also bear in mind that they require very shallow cultivation, as the roots are very close to the top of the ground. A good mulch will do much toward keeping down grass and weeds. For the currant slug, spray the bushes with Paris green, or dust dry hellebore and sulphur on them, at the first appearance of the worm, using about one-third hellebore to two-thirds sulphur.

In conclusion I will say, use plenty of manure around all of your bushes, for you must remember that they have to ripen a crop of fruit ever year and they are drawing heavily on the soil for nourishment.

LIVE STOCK.

BREEDING, SELECTING AND FEEDING CATTLE FOR EXPORT.

By W. J. Westington, Plainville.

Beef producing is a scientific principle involved in successful farming. To breed and have the best results every precaution must be used in mating. This requires study and experience in order to be successful. First, breed from a pure-bred sire, with a long line of ancestry of the fullest and richest blood possible, in order to obtain all the characteristics of a pure beef breed ; an animal possessing lots of character, so much so, as to be able to leave a marked impression upon his progeny. This is often clearly manifested by crossing upon a native scrub cow, producing animals that are really choice in their make-up.

As a rule the farmer is not always able to breed all he requires for stall feeding, and in purchasing stockers he should endeavor to secure deep, blocky, short-legged, short-necked animals, with a broad, full, short, smooth, straight back, and at the same time have a broad, prominent breast, with thickness through the body, giving room for heart action and lung power, as well as large food capacity ; a mellow skin and long glossy hair, with the bloom of gloss upon it, indicating constitutional vigor; deep-ribbed, level quarters and straight underline, and the head as an index of character, should be rather short, with a broad forehead, mild full eye, wide mouth and large nostrils.

When at large the animal should walk with a firm, quiet step (not a nervous excited gait), with a self-satisfied air peculiar to the real beef-producing type. Animals such as here outlined I have weighed in autumn and found that they weighed one thousand pounds each. When weighed individually in six months (without forcing) they averaged fourteen hundred pounds, while short-ribbed, long-backed, bad-headed, ungainly, nervous creatures did not make a net gain of half the amount on exactly the same food, and would bring from one-fourth to one-third less money per pound when sold. By this we can readily judge the loss sustained by breeding scrub or inferior cattle as compared with stock of more judicious breeding.

Before speaking of feeding I will say something with regard to dehorning, which should come more into general use. Cattle will become quieter, and the fear of the weaker ones will be allayed, when they otherwise would suffer from the savage attacks of their vicious companions. More uniform thrift will prevail in the herd if they are all dehorned, as no animal, if kept in constant fear, will enjoy its sheltered quarters, food or even natural exercise.

In the matter of food there is nothing better for the young bovine than its mother's milk. A good cow will often raise a couple of calves. Each calf, aside from the milk, should have a daily ration of wheat bran with some oat chop, and a little ground oil cake or linseed meal, also some hay and sliced turnips, grass or such succulent food as may be obtained in its season. It should be housed either summer or winter for the first six months of its life. Keep it free from draught, inclement weather and flies. Guard against all parasites, which are so very troublesome and injurious. It is desirable that it should be well cared for during the first year, for its future development depends upon its first acquired habits, as its disposition to put on flesh or otherwise can be changed by food and treatment. The calf should be quietly handled and so fed as to keep up a continuous growth.

When the calf is turned out to forage for a living, it should have a good range of mixed grasses, with a supply of wholesome water so that it may drink at will. When through excessive heat and drought, the grasses become parched and dry, the soiling system should be adopted, and provision should always be made for such conditions by sowing corn thickly in hills, through which method it will not grow too coarse for feeding. The cattle will readily eat it when distributed over an adjacent field once daily. This will not inconvenience the farmer, as it can be easily cut, placed upon a waggon and hauled to the cattle when the horses are harnessed for other purposes.

Rape sown with oats at seeding time will frequently make considerable growth after the oat crop is removed and furnish a supply to the cattle of juicy and nutricious food, so desirable to keep them healthy in a dry season. When the cold and bleak weather comes in autumn the cattle, both old and young, should be housed in comfortable stables instead of being allowed to seek shelter by a wire fence or clump of trees. Stock will invariably lose flesh if neglected in this way.

During the winter season the cattle should be made to take exercise daily and their apartments should be well ventilated, and abundance of sunlight admitted, both these being as essential to animal as to vegetable life. They should be liberally fed three times a day with hay or straw, turnips, carrots or mangels, with a little grain. About six pounds per day will be sufficient for an animal of ten hundred weight, the amount being gradually increased to one pound per cwt. in the finishing stage, but in this we must use discretion, as some animals may consume more than others, just according to their digestive qualities. Access to salt is also indispensible to good health. The cattle should also be curried at least twice a week to remove the dandruff and open up the pores of the skin, so as to allow the impurities of the body to escape through the natural channels. An animal with careful breeding and judicious feeding at the age of thirty months should obtain a weight of about fourteen hundred pounds. as this is the most desirable weight for shipping purposes. When ready for shipment they should be deep-fleshed, free from patches, showing uniform quality of meat throughout the whole animal. As such they will always find a ready market at remunerative prices, which, after all, is the great source of satisfaction.

BUYING AND FEEDING CATTLE FOR EXPORT.

By Geo. Murdie, Seaforth.

I am often asked, "Does it really pay to feed cattle for export ?" I am going to try and prove to you that it does. I am going to show you that I can buy cattle and get other men to winter them for me at a profit to themselves. I will then put them on grass for a couple of months or more, and make a fair profit, and if I can buy and make a profit in that way, you surely can do the same. I buy the well bred, well fed cattle ; I buy the best that I can get, although I have to pay a good price ; sometimes I buy heifers and sometimes steers, but I never mix them. If heifers, all heifers; if steers, all steers. In color I prefer the red, roan, flaked or white ; I do not like black, unless they happen to be the Polled-Angus or Galloway ; if either of these breeds they are all right. I like Durham grades best, Polled Angus next,Hereford or Galloway next; I do not like any of the other breeds we have here. I like the cattle to be long-bodied, low-legged, straight on the back, thick around the heart, straight and wide between the hind legs, the hams coming well down wide between the front legs, with the brisket coming well forward, clean in the neck, short in the head, wide between the eyes, with the face a little dished, skin soft and loose, hair silky and glossy. I try to get them as nearly a size as possible ; if heifers, not less than 950 pounds ; if steers, not less than

1000. I buy as early as I can, and get them on to as good grass as possible so as to have them go into the stable in good condition.

I try to get the cattle dehorned about the first week of October, and then they will be well healed before going into the stable about the tenth of November.

I think that the cattle do better tied up, although some do very well loose, but on the whole it is better to tie them. They should always be treated kindly ; I would not allow a man to feed for me if I thought that he would not treat the cattle kindly; avoid exciting them in any way whatever, as the quieter they can be kept, the less feed it will take to fatten them.

Regarding the kind of feed to use no man can lay down a hard and fast rule. You may have a certain feed that is not marketable and this might do very well mixed with something else. The great secret of success in this line is to put on the most fat at the least cost. If the cattle are tied, they should be let out every day for exercise, but never allowed to get chilled. Give them no more than they will eat up clean ; feed regularly, not at one hour to-day and an hour earlier to-morrow. I consider this very important and am satisfied that if you feed and water regularly you can do with a great deal less feed than you otherwise could.

I like to have the cattle as fat when put on to the grass as the majority of our May cattle are when shipped. I am not afraid of having them too fat. Although I have been in the business a number of years, and have many times seen a buyer turn out an animal for being too thin, I have never heard a buyer say that a bullock was too fat. The trouble is that we do not get them fat enough. If we would finish our cattle as well as they do in the Western States we would get a much higher price than we do at present. Our cattle are just as good as theirs, but we do not finish them as well.

As a rule I turn the cattle out to grass about the tenth of May, providing that the weather is fine ; never turn them out if the grass is wet ; see that the fences are in good repair ; never allow the cattle to get into the habit of jumping fences ; have lots of water (running water if possible) and plenty of shade. See that they have access to the salt ; keep dogs away from them and keep them as quiet as possible.

I have already said that I let my cattle out to farmers to feed in the winter time. I do this on the following plan. I give the farmer one cent per pound for what they weigh when put into the stable and four cents for every pound they gain. For example, if a heifer weighs one thousand pounds, they have ten dollars to start with, and if it gains one hundred and eighty pounds that would be $17.20 for feeding her, and I take all risks.

Allow me to give you an example. I will not take 1902, as this was an exceptional year, and no one could help making money, but I will take 1900-1901. I had three different lots that year, and then I bought some to put on to the grass, which brought down the average weight a trifle. I might say, too, that they were not as good value for the money as the ones I had bought in the fall.

No. 1 Lot of 12 Heifers.

November 8th. Average weight 1,016	
Ration per head :	
512 lbs. oat chop, at $16.00 per ton	$4.10
485 lbs. bran and shorts at $13.00 per ton	3.15
1,500 lbs. hay, at $5.00 per ton (not very good)	3.75
2,500 lbs. straw, at $2.00 per ton	2.50
25 bushels roots at 6c per bush	1.50
Total per head	$15.00

Paid to feeder :

Weight going in at 1c per lb.	$10 16
Gain 164 lbs. at 4c per lb...	6.56
Total	$16.72
Cost going in stable	34.00
Cost coming out stable	$50.72
Cost of 12 head coming out stable	$608.64
Cost to feeder	$15.00
Feeder received	16.72
Profit to feeder	1.72
Profit to feeder on 12 head..	$18.64

LOT NO. 2, 21 HEIFERS.

Average weight 972	
Ration per head:	
400 oat chop at $16.00 per ton	3.20
640 bran and shorts at $13.00 per ton	3.90
1,200 lbs. hay at $6.00 per ton	3.60
2,600 straw at $2.00 per ton ..	2.60
20 bushels roots at 6c per bushel	1.20
Total	$14.50
Paid to feeder:	
Weight going in at 1c per lb.	$9.72
Gain—160 at 4c per lb.	6.40
Total	$16.12
Cost going into the stable	$34.00
Total	$50.12
Cost of 21 head coming out of stable	$1,052.52
Feeder received	$16.12
Cost to feeder	$14.50
Profit to feeder	$1.62
Profit on 21 head to feeder ..	$34.02

LOT NO. 3, 5 HEIFERS.

Average weight 952	
Ration per head:	
500 lbs. oat chop at $16.00 per ton	$4.00
400 lbs. bran and shorts at $13.00 per ton	2.60
1,800 lbs. hay at $6.00 per ton	4.50
2,000 lbs. straw—$2.00 per ton	2.00
Total	$13.10
Paid to feeder:	
Weight going in 952 at 1c per pound	$9.52
Gain—134 at 4c per lb.	5.36
Total	$14.88
Cost going into stable	$34.00
Cost coming out of stable	$48.88
Cost of five head coming out of stable	$244.40
Paid to feeder	$14.88
Cost to feeder	$13.10
Profit to feeder	1.78
Profit to feeder on five head	$8.90

Cost going on the grass.

Lot No. 1		$ 608.64
Lot No. 2		1,052.52
Lot No. 3		244.40
Interest on $1,905.56 for 9 months .. ..$ 71.43		
Interest on $672.00 for 3 months	8.40	
Buying	50.00	
Sundries	10.00	
Pasture for 52 head for 2 months	260.00	$ 399.83
14 head at $48.00 each		$ 672.00
Total cost when sold July 15th		$2,977.39
Sold 52 head at 5c per pound and $1.00 per head over. Average weight 1,265, by 5, is $63.25 and $1.00 is $64.25; $64.25, by 52, is $3,341.00, less $20.00 of a loss, as one heifer got hurt. This makes the amount		$3,321.00
Net profit		$ 343.61

I have tried to show you above that the feeder of lot No. 1 made a profit of $18.64, feeder No. 2 of $34.02 and feeder of lot No. 3 of $8.96, beside the manure they obtained, paid for their trouble, and I had a profit of $343.61 over all my expenses.

These were a lot of heifers which I can assure you that I was not ashamed of. They were counted the best lot of heifers seen in Toronto for some years and some of the buyers said that they were the best they had ever seen.

THE BEEF ANIMAL FROM THE BUTCHER'S AND FEEDER'S STANDPOINT.

By M. Cumming, O.A.C., Guelph.

One has only to visit some of the leading meat markets of Great Britain to ascertain that there are yet many of our Canadian feeders and breeders of live stock who have not reached the ideal we think Canadians ought to reach in the production of marketable beef cattle. In Britain, our greatest export market, Canadian cattle are considered, as a class, inferior not only to the Scotch and English product, but even to the cattle shipped from the United States. "So long as this continues to be so," is the substance of statements made by a leading Smithfield merchant to the writer, "so long will we have to continue to pay lower prices for Canadian cattle than we would wish to pay. National preference would lead us to favor the product of our own colonies, but

the best markets of the old country, such as Smithfield, are very exacting, and therefore no patriotic or national sentiment can make us overlook defects in your cattle. While there are exceptions," continued this Smithfield merchant, "yet, as a class, your Canadian cattle are deficient in quality and are often times underfitted for our markets."

It is in view of these facts, ascertained personally by the writer during a recent visit to the old country, that we revert to a somewhat old-time topic; and while, perhaps, nothing new to the majority of readers will be presented, yet there must be some who, in perusing such an article will at least have their attention called to the consideration as to whether the cattle they are selling belong to the rather too small class of good ones, or to the altogether too large class of poor ones, that find their way from Canadian

CUT 3.—A Prime Beef Heifer, both from the Feeders' and Breeders' standpoint.

farms to British markets. Moreover, a knowledge of the class of beef animals required by the markets which are supplied is perhaps the most important prerequisite not only for the successful feeder, but also for the breeder of pure-bred stock. Sometimes, especially when the "pure-bred" market is booming, and speculation among pedigrees is rife, the breeder is very apt to overlook this fact. But, nevertheless, no matter what their breeding or fine points, pure-bred cattle are ultimately valuable only so far as they can produce animals that will meet the exacting demands of the block. An inquiry into the requirements of such high-class markets as Chicago and Smithfield, London, is the purpose of this article.

We certainly give utterance to a truism when we say that the great thing that renders a steer valuable is that the animal possesses a class of meat that will command the best price upon the market. To be more definite, the worth of a steer, other things being equal, depends on the proportion of the more valuable cuts to the inferior priced meats. When in addition to this the steer possesses the further requisite of quality, it will be just the steer that will bring satisfaction to the seller and equally high satisfaction to the buyer. It should, therefore, be the aim of both the feeder and breeder to choose and breed those animals that most nearly fill these requisites. To make this point clear we can do no better than submit the following illustrations, showing the cuts, the relative weights, and the average prices of these cuts in the two leading beef markets of the world, Chicago and Smithfield, London. For the former we are indebted to the Drovers' Journal, Chicago, which states that the prices attached are corrected to date by a leading dealer in meats, and are a fair representation of the prices for which meat is now (winter of 1902-3) being sold to the customers. For the English method of cutting and prices, we are indebted to Mr. Wm. Cooper of the Smithfield market, London, who states, in regard to prices, that they are a fair average the year around.

Chicago Method and Prices. The weights of cuts and values are given for a first-class beef steer weighing about 1200 pounds.

In looking at diagram No. 1 it will be noticed that the highest priced cuts are the prime of rib, porterhouse, sirloin, rump and round, and that the other cuts are very considerably lower in value. Dividing the steer into these two classes of cuts, which we may term best quality and second quality, we will indicate in the following tables the relative weights and values of these two classes :—

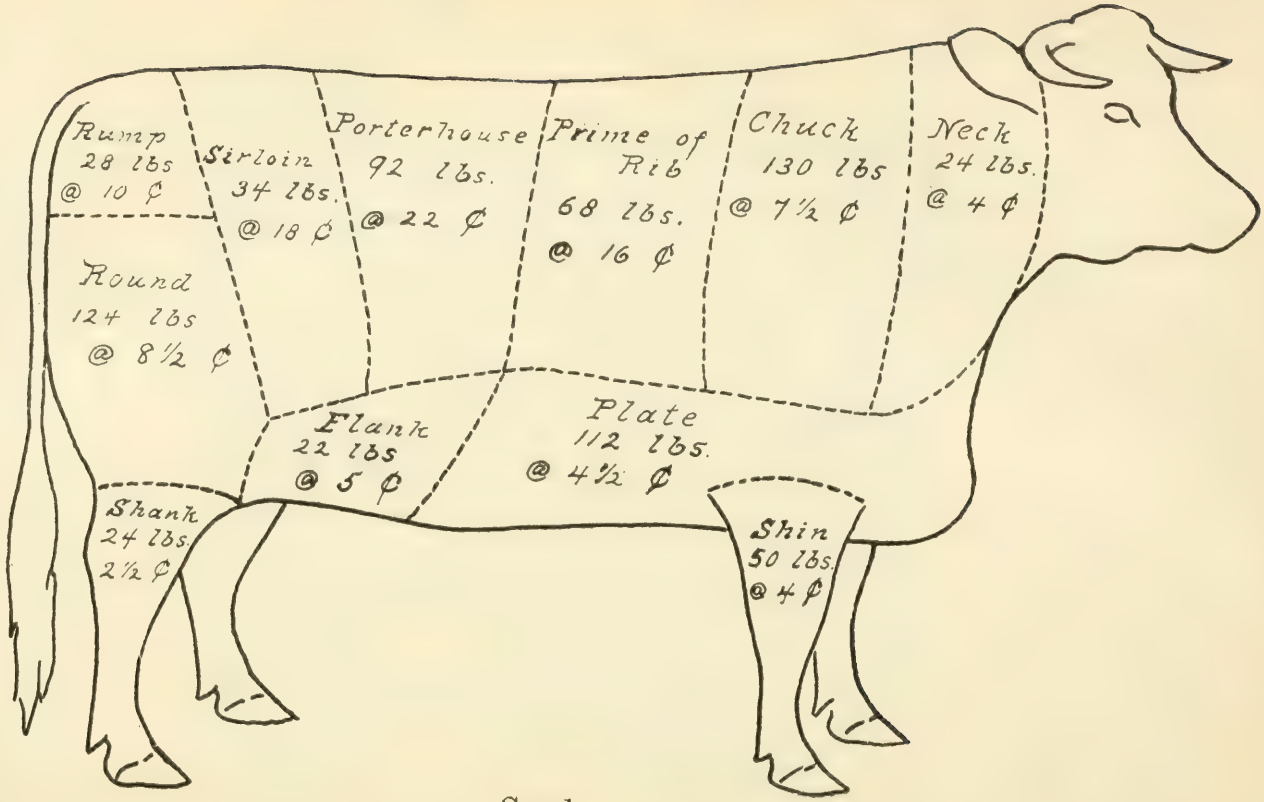
BEST QUALITY.

Name of cut.	Weight of cut.	Price per lb.	Total values.
	lbs.	cts	$ c.
Prime of rib	68	16	10 88
Porterhouse	92	22	20 24
Sirloin	34	18	6 12
Rump	28	10	2 80
Round	124	8½	10 24
Totals	346	..	50 58

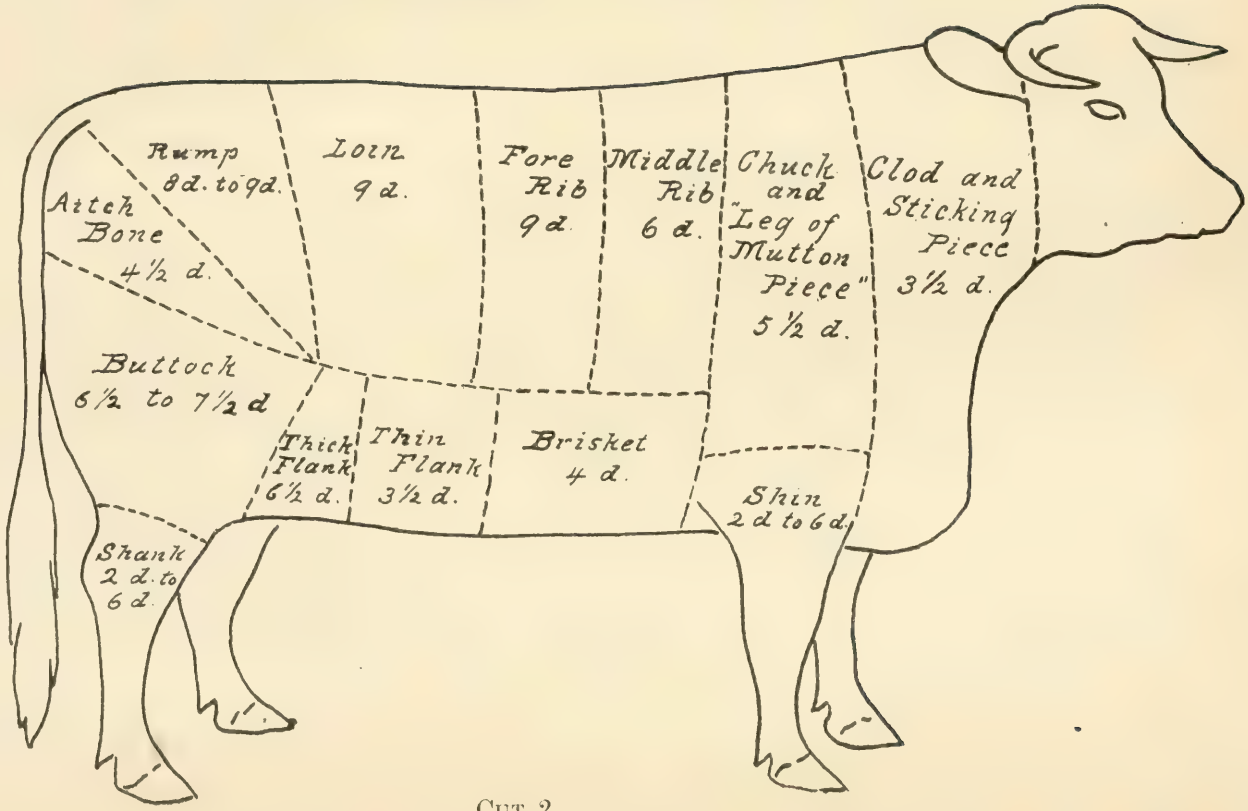
SECOND QUALITY

Neck	24	4	0 96
Plate	112	4½	4 04
Flank	22	5	1 10
Chuck	130	7½	9 75
Shin	50	4	2 00
Shank	24	3	0 78
Totals	362	..	18 57

These tables show that the value of 346 pounds of meat cut from the best sections is worth $50.58, and, on the other hand, 362 pounds from the inferior sections is worth only $18.57. When, in addition to this, we note that, among the cuts that we have designated second quality, the chuck is considerably the most valuable, we can fully appreciate the reason why steers of the modern beef type, which is described below, bring so much higher prices than so-called scrubs.


Rump
28 lbs
@ 10 ¢
Sirloin
34 lbs.
@ 18 ¢
Porterhouse
92 lbs.
@ 22 ¢
Prime of
Rib
68 lbs.
@ 16 ¢
Chuck
130 lbs
@ 7½ ¢
Neck
24 lbs.
@ 4 ¢
Round
124 lbs
@ 8½ ¢
Flank
22 lbs
@ 5 ¢
Plate
112 lbs.
@ 4½ ¢
Shank
24 lbs.
2½ ¢
Shin
50 lbs.
@ 4 ¢

Cut 1.


Rump
8d. to 9d.
Loin
9 d.
Fore
Rib
9 d.
Middle
Rib
6 d.
Chuck
and
"Leg of
Mutton
Piece"
5½ d.
Clod and
Sticking
Piece
3½ d.
Aitch
Bone
4½ d.
Buttock
6½ to 7½ d
Thick
Flank
6½ d.
Thin
Flank
3½ d.
Brisket
4 d.
Shin
2 d to 6 d.
Shank
2 d. to
6 d.

Cut 2.

This same fact is equally well illustrated in diagram No. 2, which shows the method of cutting and the average price of cuts in the Smithfield market, London, England.

It will be noted that there is a considerable difference not only in the prices, but also in the methods of cutting beef in the respective American and English markets. At the same time the high priced cuts in both are in the same parts, viz., back, the rump and round, and the demands for each are best met by the same class of steer.

Now there is one very important point which the successful feeder must take into consideration when selecting his steers, and this is that it takes just as much feed to produce the 362 pounds of $18.57 meat as it does to produce the 316 pounds of $50.58 meat. The more of the latter that a steer yields, and the less of the former, the greater will be the profit to the feeder. But there is a limit to this, for, just as it is absolutely impossible, in the very nature of things, to have a steer that is all first-class beef, so is it impossible to have a steer that will produce a large amount of first-class beef without being well developed in the other parts. Of this we will speak further when we come to consider the beef animal more particularly from the feeder's standpoint.

For the present that animal best meets the needs of the block that is wide and thickly fleshed all along the back, loin and rump, and that is proportionately developed in the round.

It is just in this faculty of producing a relatively high percentage of the best cuts of meat that pure-bred beef animals, such as the Shorthorn, Hereford, Aberdeen Angus, Galloway or high grades of these breeds differ from animals of dairy or scrub breeding. This fact was very clearly demonstrated in a block test recently conducted at the Missouri Experiment Station, in which the relative proportion of porterhouse and sirloin to the other cuts was shown in a pure-bred Shorthorn steer and a scrub steer.

—	Weight of all cuts.	Wt. porterhouse and sirloin.	Per cent. of porterhouse and sirloin to all cuts.
	lbs.		
Shorthorn	1,046	127	12.10
Scrub	824	82	9.10

It will be noted from this table that the Shorthorn steer produced relatively one-third more porterhouse and sirloin than the scrub, so that, had the Shorthorn weighed the same as the scrub, there would have still been about 26 pounds more of these cuts in favor of the Shorthorn. A further comparison would show a corresponding proportion of the other high priced cuts in favor of the Shorthorn.

So far as this is concerned we do not know what more could be said to prove the importance of the well-bred animal in beef production, but there is yet another consideration, to which we have just briefly referred, viz., quality and early maturity.

During recent years, our best markets have become very exacting in regard to the quality of beef animals. People have become educated in regard to the meat they buy, and whereas in former years it was easy to sell the meat from four and five year old steers, nowadays, in the best markets, this class of meat is entirely overlooked in favor of the meat from two and two and a half year old steers, which in comparison is more tender and juicy, and has the fat marbled through the lean instead of being in thick masses on the outside. Heavy, coarse and poorly covered bone is equally disparaged, and the modern butcher calls for "handy" steers ranging from 1200 to 1500 pounds in weight, with the flesh evenly distributed over all parts, of fine grain, well marbled (i.e. the fat nicely mixed through the lean) and without the unsightly and wasteful rolls of fat

which are so often seen on the ribs and at the tail-head of steers of inferior quality. Such has become this demand for quality that a recent writer in a Chicago live stock paper has modernized a famous piece of literature, which he concludes thus, "And now abideth form, constitution, quality, these three ; but the greatest of these is quality." Here again the well-bred steer stands forth as the champion of quality and early maturity. These points we will enlarge when discussing the steer from the feeder's standpoint.

Before passing by this aspect of the subject, there is one other feature to which we would call the reader's attention. It may be thought from the above discussion that the high-class beef animal caters mostly to the taste of the wealthier classes, viz., those that can afford to buy the rib roasts, porterhouse and sirloin cuts, but in order to show that this same animal is a very democratic beast, and also meets the needs of the poorer classes, we will call the reader's attention to the comparative value of such a cut as the chuck in a prime beef animal, and in a scrub or dairy animal. We have classed this cut as of second quality. At the same time if any one will observe the relative amount of meat on this part of an animal of the recognized beef conformation, and on one of the dairy conformation with its v-shaped, barely-covered shoulders, he will readily see that the man who buys the chuck from the former, is infinitely better off than the one who buys the same cut from the latter. In fact, the chuck from a prime beef animal is in many cases better than the rib roasts or porterhouse cuts from animals of dairy or scrub conformation. Thus once again the prime beef steer stands forth pre-eminent in his own sphere.

So much for the market and its demands—but what of the feeder ? Upon him devolves the task not only of producing the class of animal already described, but also of selecting and fitting the animals that, when finished, will satisfy these requirements. Incidentally he must make his profits, and it is just in the faculty of selecting animals that will not only be good feeders, but will also meet the demands of the market, that his profit-making consists. Fortunate it is for him that, as we shall see, the butcher's and his ideal are practically the same.

Were it possible to secure such, the butcher, as we have already stated, would like to buy animals that were made up altogether of high-priced cuts. But not only is this an impossibility, but, moreover, experience has clearly demonstrated to him that the kind of steer that will produce the largest percentage of high-priced cuts is the very steer that the successful feeder likes to feed. This is the thick-bodied, deep-ribbed, short-legged steer of good quality. Narrow or shallow, long-legged steers are not only poor feeders, but also produce a relatively small amount of high-priced meats. Moreover, those that lack in quality not only take too long to come to maturity and hence run away with the profits of the feeder, but they also produce a carcass, which, on account of its too coarse bone, its uneven covering of flesh or its patchiness, is an unprofitable one for the butcher.

Of all the requirements mentioned above, none is less clearly understood than that of quality, and hence a few sentences in regard to this may not be amiss. The term quality as applied to the living animal refers to the fineness of bone, soft mellow hide, fine silky hair and a general smoothness of fleshing throughout. Nowhere is it more clearly reflected than in the head, in which a moderate size, good proportions, a clean cut appearance and freedom from any beefiness or puffiness below the eyes are all indications. Such attributes as a very rough, heavy frame, coarse joints, prominent, ragged hips, rough open shoulders, a thick, harsh-handling hide, with coarse dry hair are among the most pronounced evidences of deficiency in this particular.

While these evidences of quality are always desirable from the butcher's standpoint.

it not infrequently happens that animals of great quality border on delicacy, and hence do not make as good feeders as some that are deficient in this particular. Of this the feeder must beware. Where quality and size and stamina can be combined, then we have an ideal animal. But quality alone without depth and thickness of form does not make a good feeder's animal, and, while we do not like to see any great deficiency in this respect, yet we would prefer an animal that may be a little too heavy in bone or a little too prominent at the hip bones or shoulder blades to one which, having all the requisites of quality, is a rather delicate feeder.

We have referred at considerable length to the demands of the markets for young steers because of their producing a class of meat of better quality and better adapted to the tastes of their customers. Those who in years gone by were accustomed to the huge, cumbersome, four and five year old steers weighing a ton or more, might be inclined to think that, in catering to the demands for smaller steers, the feeder is surely losing money. But such is not the case, for we can quote numerous experiments of our best feeders to prove that feed goes much farther, and gains are made much more cheaply with young than with older steers, and hence the earlier that they can be put on the market the better. This fact was particularly well illustrated by records kept at the Fat Stock Show in Chicago in 1882. For this show a record was kept of the cost of producing 100 pounds of gain on steers of various ages up to three years and from the table presented below it will be observed that the cost increased very materially with the increasing age of the steers.

Cost of 100 lbs. gain with steers of different ages :

1 to 12 months old.		12 to 24 months old.		24 to 36 months old.	
No. of animals.	Cost of food.	No. of animals.	Cost of food.	No. of animals.	Cost of food.
9	$ c. 4 03	5	$ c. 7 98	2	$ c. 12 54

Steers older than three years were not shown, and therefore no records of such were kept, but, had they been, it would have been found that the cost of food for the following months would have been still higher. The feeder and butcher are, therefore, at one in regard to early maturity, as well as in regard to the other points we have discussed.

There are several other questions touching the common interests of the feeder and butcher, but of these none is of more vital importance than the degree of finish to which a fattening steer or heifer should be brought. This is one of the problems which our fat stock shows have tried to solve for the people, and, so far, it must be said, with only fair success. Some markets, especially our local ones, seem to be satisfied with beef that is rather on the thin than the fat side, and in many cases, where local butchers have been appointed as judges at fat stock shows, under-done carcasses have accordingly been awarded the premiums. The best markets in the world, however, such as the ones to which we have referred above, while not demanding over-fat carcasses, yet require rather highly-finished ones, and will pay correspondingly higher prices for them. It seems to be in this particular of finish more than anything else that Canadian steers fail in the English markets, and to which, therefore, a great deal of attention should be paid. Now every feeder knows that it costs much more to put on the last hundred pounds than any of the earlier gains, and that it requires much more skill to keep the steer in good condition during this stage than in any previous stage. As a consequence the temptation to part with steers before they are quite finished is very great, and especially so if the buyer, to whom the steers are sold, does not discriminate very closely

with regard to the prices paid for steers of varying quality and finish. In the writer's opinion the principal reason why the United States' steers are superior in this respect to ours lies largely in this fact: that the greater number of the beef animals there, are marketed at large stock yards, such as Chicago, Kansas City, and elsewhere, where discriminating buyers in keen competition with each other, sometimes pay as high as $2 to $3 per hundred more for well finished steers than for poorly finished ones. Perhaps the establishment of similar stock yards, which will educate the farmer through his pocket, will prove the best means of influencing our feeders to bring their cattle to a higher degree of finish, and will thus gain for Canadian cattle a prestige in the old country markets, which they do not at present hold. It is almost impossible to describe in words just the finish that will bring the highest prices in these markets, but we would strongly recommend every one interested in the subject to attend the fat stock shows and make an especial study of the "block test." The importance of the subject can scarcely be over-estimated.

It is a comparatively easy task to recognize all these desirable features, which we have discussed, in the finished steer. The greatest skill, however, is required in getting a class of calves, and selecting a class of store or stock cattle that will mature profitably into the form and quality that will command the highest price on the market. Here it is that the value of a pure-bred bull of any of the recognized beef breeds shows itself. Probably almost every feeder, who reads this article, has had experience with stockers bought from sections where good bulls were used, as well as with stockers from sections where little attention was paid to the class of bulls used, and no doubt such experience has proved, better than any words, that one could afford to pay considerably more for the former than the latter, and still make more profit. It was in this very way that Robert Colling's attention was first called to the famous bull Hubback that did so much in laying the foundation for the modern Shorthorn breed.

The most satisfactory feeders are generally to be obtained when a man raises his own calves for this purpose. Under these circumstances, attention can be paid both to the sire and dam of the calf and "blood will tell." The dams need not necessarily be pure-bred. Common Canadian cows are in most cases good enough. At the same time the more attention that is paid to the selection and breeding of these, the better. In all cases the cows should possess good constitutional vigor and roominess, and should be possessed of good, strong, though not coarse, bone. The best results are not as a rule obtained from the largest cows, as these are often times too coarse, and produce calves with the same failing. Medium sized cows that make up for lack in size by extra quality, will prove the most satisfactory. The sire should invariably be pure-bred and should indicate both in individuality and pedigree that he is an early maturer and possesses an aptitude to feed well and lay on flesh rapidly. It is not in the compass of this article to discuss minutely the desirable points of such a bull. The best descriptions are to be had by visiting the agricultural exhibitions and fairs, where living examples are to be seen and examined. The calves should preferably be dropped in the fall, so that they may be ready for market two years from the following spring, i.e., when they are two and a half years old. Conditions will, however, vary, and, especially where cattle are finished off on grass, calves dropped at seasons of the year other than the fall may perhaps suit equally well.

Although it is true that the most satisfactory feeders are generally to be had by breeding them, yet many farmers are so circumstanced that they cannot do this, and therefore buy store cattle or stockers, which they feed for varying periods of from three to six months and then sell. It requires much experience and a well-trained eye to select the class of stockers that will prove the best feeders, and at the same time mature

into the most desirable form. But there are certain types of cattle that will not feed satisfactorily, and with which, therefore, the feeder should acquaint himself. A dairy-bred steer, for example, with its narrow back, wedge-shaped shoulders, and light hind-quarters, is never a good type to feed. The buyer will invariably discriminate against such a steer and pay a very much lower price for him than for one of the approved beef type. There are also many native-bred steers possessing more or less the conformation described above, which, on account of narrow chests, or flat ribs, or rough, coarse shoulders and hip bones, are equally unprofitable feeders. The good stocker being comparatively thin in flesh, and temporarily lacking the thick covering of the back and ribs of the finished animal, can never appeal to the eye as he will after a few months' feeding, but he should nevertheless present a blocky frame, stoutness of build, accompanied by short, straight legs, wide back and loin, well-sprung ribs, fullness back of shoulders and in flanks, prominent brisket, full neck-vein, wide chest, and well rounded barrel, together with a good, soft, mellow-handling skin and fine silky hair, giving what is termed the thick, mossy coat, without coarseness, and with it all a good, strong, vigorous head, clear, full eye, and quiet temperament. Experience will teach the eye to recognize these qualities at a glance, a thing which must be learned, for in buying in a large bunch of steers, it will be found impossible to study each one very minutely. The man who by close observation learns to recognize these qualities and to avoid culls, will very greatly increase his profits, and if in addition he selects a bunch that in size, quality and general appearance are very uniform, his stables will present such an appearance that he will get the highest market prices for his finished product.

All this implies close observation and study, and if with it is combined continuous good feeding, then success is sure, and when every Canadian farmer attains to that ideal our agricultural prosperity, so far as live stock is concerned, is guaranteed.

HORSE RAISING AND THE REQUIREMENTS OF THE MARKET.

By W. F. Kydd, Simcoe.

The market requires four kinds of horses, viz., heavy-draughts, carriage, saddle and road horses. I place draughts first, because they are sure to be profitable. If they do get blemished, it does not take so much from their value, as it would from a light horse. A heavy horse will pay for his feed after three years of age. It is not so difficult to break heavy horses as it is light horses.

Farmers who breed horses tell me it costs about $80 to raise a colt to the age of three years. This includes the cost of a first-class stallion. This horse when four years old is worth from $175 upward. A horse to command such a price must have good, strong feet, because narrow, contracted heels generally indicate side-bones. Pasterns must be sloping. Upright ones do not take the concussion off the leg when the foot strikes hard roads. The leg should be clean, with no meaty substances between the skin and bone. A horse with a meaty leg is likely to have bog-spavin, thorough-pin, lymphangitis and grease heels. The back should be short, with well-sprung ribs. The more action a heavy horse has the better. A draught horse should not weigh less than 1,600 pounds.

Some men do not care to raise heavy horses, or perhaps have not suitable mares. In this case, the best horse to raise is a carriage horse. A carriage horse should be about fifteen and three-quarter hands in height, and should weigh about 1,100 pounds. He must stand straight on his feet, so as to show straight action. The value of a carriage horse is nearly all in his action. He must also have "good manners" and must be

good looking. The head should not be large, but a prominent eye and a broad forehead are marks of beauty in a horse. A short-necked horse never has the appearance that a longer necked one has. The neck should be nicely arched.

The breeder should always remember that "like begets like," and he cannot expect unsound sires and dams to produce sound colts. I saw a mare with "curly hocks," and her foals had legs just as poor as the mother's. A blind stallion was used in a certain district, and in three or four years many of that horse's colts were blind.

How are high-class horses to be raised? Stop selling our best mares; never use a blemished or unsound mare; stop breeding to the cheap stallions that are in the district. Stallions should be licensed, and examined by competent men, men who would do their duty, no matter what the owners of cheap stallions might say. Then, and not till then, will sound horses be used. I have seen some imported stallions that would have made geldings worth about $150.

At the different places at which I have been addressing Institute meetings I have been asked to look at many stallions. Nearly every owner said: "Mine is the best horse in Ontario." Some of these had grease running off the hair on the legs, and others pointed their toes out so much that when they trotted the one foot could hardly pass the other. This is no overdrawn statement, but one of stubborn facts.

There is a good demand for high-class horses, and such animals will pay a good profit on the investment. The poor article that "went to Africa to stop bullets" left no profit, but was more than likely sold at a loss.

DISCUSSION.

Q.—Would it hurt a heavy colt, two and a half years old, to work it a little? A.—W. F. Kydd, Simcoe. Not if the work was light.

Q.—Is it better to feed crushed or whole oats? A.—Crushed.

Q.—How should a foal be treated the first winter? A.—Let it out for exercise every day. Feed it on crushed oats and bran, with good hay, and give it enough to keep it in good condition.

Q.—Are 10 quarts of oats and 10 pounds of hay enough for a horse? A.—No.

Q.—Would you raise foals from a foundered mare? A.—Veterinary surgeons say it would not injure the foal.

Q.—Would you breed a road mare weighing 1,100 pounds to a draught horse weighing 1,800 pounds? A.—No, because you have no idea what the foal may be like. One who had tried this cross had one horse weighing 1,600 pounds, and a full brother that weighed 1,300 pounds.

Q.—What should a mare weighing 1,300 pounds (a Clyde type) be bred to? A.—A heavy horse.

Q.—Which is the most valuable brood mare, a cross or pure bred? A.—Dr. Henry G. Reed, Georgetown. Everything else being equal, the pure-bred mare is certainly the most valuable brood mare.

Q.—What is the cause of cribbing? A.—Cribbing is simply a habit, and in the great majority of cases no cause can be given.

Q.—Is it better to water a horse before or after eating? A.—Before eating.

Q.—What is the best hay to feed young growing horses? A.—Clover hay, if well saved, is decidedly the best.

Q.—Will feeding clover hay produce heaves? A.—If clover hay is well saved it is not any more likely to produce heaves than is timothy.

Q.—Is a mare that is going sore on her feet likely to raise sore-footed foals? A.—No. But a mare that has naturally a weak foot might produce a foal that had weak

feet, and of course the foal would be likely to go sore if given hard work on the roads. In other words, navicular lameness is not hereditary, but the conformation that predisposes to it, is.

Q.—How would you recommend a man to breed a half-bred Clyde mare? A.—Breed the mare to a pure-bred Clyde horse, and thus get two crosses in your foal.

Q.—Are a horse's teeth ever in such a condition that they would be the better of being filed? A.—Yes.

Q.—How much hay should a horse be fed? A.—It is claimed that a horse should have one pound of hay for every hundred pounds of his weight. Thus, a horse weighing 1,000 pounds should have 10 pounds of hay in a day, but in my opinion no hard and fast rule can be laid down. We have to consider the individuality of the horse to some extent, and also take into consideration the kind of work he is doing.

Q.—Why should a horse with heaves not have much hay for breakfast or dinner? A.—Because the distended stomach presses on the lung space.

Q.—Is not a colt that lives a rough, hard life, usually a more hardy animal, if he were always well fed? A.—No. It is a great mistake to think that such treatment tends to make a hardy animal.

Q.—Why do you object to coarse, curly hair on heavy horses' legs? A.—Because it indicates a coarse skin, liable to develop scratches, grease heel, etc.

Q.—How would you feed a horse that often choked when eating oats? A.—Put some small, round stones in the feed box, so that he cannot eat so fast.

Q.—What type of mare would you advise a farmer to breed to a coach or hackney stallion? A.—If you have a pure-bred coach or hackney mare, all right, but if not, then see to it that your mare has some hot blood in her veins. A very coarse mare is not suitable for this cross.

PRESENT PROSPECTS OF THE HOG TRADE.

By T. H. Mason, Straffordville.

Great Britain usually imports about $80.000,000 worth of hog products annually. Of this amount the United States generally furnishes from $36,000,000 to $50,000,000, the balance being divided between Denmark, Scandinavia and Canada, with smaller amounts from a few other countries.

Although we do not compete directly with the United States, to a considerable extent—they supplying a different class of custom—still, the amount that the United States is able to furnish has a very great influence on the price of all hog products from other countries, for if there should be a shortage in the amount available from the United States there would be a corresponding increase in the demand for goods from other countries.

The annual pack of hogs at principal points in the United States has for several years past ranged from 20,000,000 to 25.000,000. In 1901, according to the Cincinnati Price Current, the total pack was 25.210,000, and in 1902 21,110,000, a reduction of over 4.000,000 in numbers, and a much greater decrease in volume packed, as the weights of 1902 were much under that of the preceding year, owing to the failure of the corn crop of 1901 in a very large portion of the United States.

This shortage in the number of hogs packed, coupled with an unusually strong domestic demand, owing to favorable trade conditions, has caused an unusually small amount of cured meats in the United States. It is stated that on the first of January, 1903, the amount of cured meats in the United States was less than at any time since the

civil war. The number of hogs packed in the United States this winter is very much less than for the corresponding time last year; the shortage from November 1st, 1902, to February 25th, 1903, amounting to 1,955,000. As to probable supplies in the United States this summer, the Department of Agriculture, Washington, reports store hogs to be 18 per cent. short of corresponding period last year.

Supplies of store hogs in this Province (Bureau of Industries) are estimated to exceed those of last year by five to ten per cent.

All over the Province of Ontario there is an actual shortage of feed stuffs. All through the corn belt of Western Ontario the corn is largely a failure. The pea crop, where grown, was a decidedly poor one, so that in all probability up to September 1st the number of hogs coming to market in Ontario will be away below the normal. We have been accustomed, in case of shortage, to import cheap corn from the United States. We will not be able to do so this year, as the American crop, while large, is damp, and dealers are afraid to handle it. Even No. 3 will cost 53 cents laid down in car lots at most Ontario points. We must remember, too, that American corn is largely used by all European feeding countries, Denmark, Ireland, England and Germany taking large quantities. This will probably have some effect on supplies in those countries.

The shortage in supplies has already advanced the price of hogs in American centres to very high figures; Buffalo ranging from $7.00 to $7.75 live weight, and hogs from Ontario points are going into Buffalo, despite the high tariff. Prices in this Province must go much higher in the near future.

The extraordinary prices in the United States naturally cause much criticism of the Canadian packers. We should remember a few facts before criticising too severely.

1. The American packing business is on a very much larger scale than ours, consequently is more economically handled.

2. There is an immense foreign population in the United States, and there is a very great demand for heads, feet, spare-ribs, fresh pork, and cuttings of all descriptions, including much that is here classed as offal, and which is wasted here.

3. American hogs are a different class from ours. They are generally shipped much longer distances, and, being heavier and fatter, will dress at least 5 per cent. more dressed meat to the hundred than ours will.

5. Transportation rates, as a general thing, favor the Americans, and especially the great corporations, such as Armour's, Swift's and Nelson Morris, etc.

6. The domestic markets of the United States consume on the average about 75 per cent. of their products, and they export the balance. Sometimes the home market pays more proportionately than the foreign, as the trade is largely controlled by a few powerful houses.

Notwithstanding all these advantages, the fact that our stuff usually brings more in the Old Country, and that our domestic markets are generally higher than the United States markets, leads me to conclude that our packers can pay more than they do at present.

DISCUSSION.

Q.—Is there any profit in this hog business any way? A.—T. H. Mason, Strafordville. I do not think there is any branch of agricultural industry in Ontario that, for labor and capital expended, gives anywhere near as good returns. Our average selling price for the last ten years has been $5.30; the highest, $7.00; the lowest, $3.65, and I do not think that our average cost of production will exceed three cents per pound, live weight. Last year, with everything dear, our summer pigs cost $3.75 per hundred live

weight, and sold at $6.50. Then, also, hogs remove from the soil less fertilizing material than any other class of farm stock.

Q.—Is buckwheat a profitable food for pigs? A.—Buckwheat can be used in conjunction with other grains, often to advantage. All depends upon the price and relative value of grains. Pound for pound, I do not place buckwheat as high in value as wheat, peas, rye or corn, and at the price buckwheat is selling this winter—48 to 50 cents—it is out of the question entirely.

Q.—Wheat shorts are now selling at $18 per ton. Can we afford to pay that price when hogs are selling at $5.75, live weight? A.—We find that we cannot afford to do without shorts, especially for young pigs. After they pass one hundred pounds weight, shorts are not so necessary, as we can often use oats to advantage to lighten up heavier grain. Still, very often, even then it would be better to buy shorts. I would rather have a pound of shorts than a pound of oats any day.

Q.—I have no luck with pigs in winter. My young pigs go wrong and often die. I have a good warm place, too. A.—There are a few essentials to successful raising of young pigs:

1. Pen should be fairly well ventilated.
2. Pen should be dry.
3. For young pigs the pen should face the south.
4. Have as much light as possible; a window opposite each pen, and get the sunlight on the floor.
5. Give earth every day or two. Some people put away sods for this purpose.
6. Sleeping beds should be elevated, and straw changed very often.
7. Do not over-feed or load up little pigs with a lot of cold, sloppy stuff. Take the chill off the feed, and feed a little on the thick side.
8. Do not wean the pigs too young, especially in winter. Let them stay on the sow until eight or ten weeks old.
9. Whenever weather is mild, get them outdoors on the sunny side of a building.

Q.—Is a stone floor suitable for a pig pen? A.—I do not think it satisfactory.

Q.—At present prices of grain, will it be profitable to feed wheat to pigs? A.—Yes, I think so, but I would prefer to lighten it up with oats, bran or shorts.

Q.—Is corn a good feed for pigs? A.—Corn is not a good feed for very young pigs. After the pigs are, say 100 pounds, live weight, a large percentage of corn may safely be fed.

Q.—What is the best age at which to wean pigs? A.—If you have plenty of milk you can wean at a much younger age than it would be safe to do otherwise. Ordinarily I think from eight to ten weeks is the best age. By that time the pig has a good, strong stomach, is eating well, and will bear the change all right. At first we feed for a few days—say five times a day—on scalded shorts and milk, if we have it. If you feed whey, scald the whey and add a ground oil cake to the shorts—about a double handful to a litter of ten pigs. Never over-feed at any time. Always have the troughs clean, and the pigs willing to take a little more.

Q.—Certain breeds are advocated because of their large litters. What do you think of it? A.—From eight to ten is a very satisfactory litter. Occasionally a sow will nurse twelve pigs. An abnormally large little is very unsatisfactory. The pigs are usually very uneven, several of them very small, and none of them as vigorous as those in a smaller litter. Generally some of them will die.

Q.—What is the best pasture for pigs? A.—Clover gives good satisfaction. When we have lost a catch, we find oats and peas sown very thickly together very useful, the pigs being turned into it when the growth is about a foot high. We sow rape for later feed.

THE CARE, MANAGEMENT AND PROFIT IN SHEEP.

By J. H. Wooley, Burford.

In starting this paper let me say that it is rather bad time to talk up a thing when it is low. Now, is it or is it not? How many of us would be further ahead financially had we gone into some thing or things when they could have been bought at very reasonable prices? If you wait to go into anything when the boom is on, what enormous prices you have to pay then. For example, look at the horse, particularly the carriage horse. Notice the Shorthorn cattle business of to-day. Go into anything when it is low, and nine times out of ten you will hit it.

Sheep, lambs and wool have been low for some time, but the prospects are looking better. When you take into consideration the increased consumption of mutton, the visible decrease in the supply of wool, and the fact that in Canada there are to-day thirty per cent. less sheep being kept than there were ten years ago, may we not expect a reaction? Yes, it is already being felt; lambs have gone up to good paying prices, wool has advanced to nearly a nickel per pound, and I see no reason why this neglected branch of farming will not become one of the most remunerative.

Now, to return to the subject. Sheep require the least amount of work of any animals we have, but, of course, lots of attention will well repay you. You do not need to keep them in expensive barns, nor blanket them, curry them, milk them twice a day, nor be carrying hard cash in a swill pail three times every day to them. They will, if properly managed, gather a good living, which would in a very large measure otherwise be wasted or not put to the best use.

In starting a flock, select good strong ewes of your favorite breed. Mate them in November to a pure-bred ram, and right here let me say, that the small extra expense necessary to procure a good one will well repay you. If you want to see the results of this, I can show you a flock of some sixty head, grade ewes and wether lambs, bought from different farmers, who paid no attention to the rams used. These lambs, weigh from ninety to one hundred pounds; while in another pen there are some fifteen head, bred from pure-bred stock, and having no better care, which will weigh fifteen to twenty pounds more. Figure this out, and you will find that anyone having ten to fifteen ewes can afford to pay from ten to twelve dollars for a good registered sire.

Give the ewes a small allowance of roots daily along with their coarse feed, and see that they always have access to salt. Let them have plenty of room for exercise and rather induce them to exercise by feeding them on the clean, frozen ground, or in racks some distance away from their pens. Keep them in good condition, but not too fat, and then, sometime in April, you are likely to have a number of good strong lambs. When your lambs are a few days old, cut their tails and castrate the ram lambs. Have for the little lambs a "creep," where they can get a nibble at some clean, pulped turnips, with some oats and bran. Feed the ewes liberally now, with roots, oats, bran and good clover hay, and by the time the lambs have a good start all will be ready to turn out to pasture. Shear your sheep early without waiting to wash them, and after shearing dip them for ticks; also dip the lambs. Do not neglect this part of the management. I dip my lambs twice a year, and even then I find it hard to keep them clear of ticks. Ticks are heavy feeders, besides being a constant annoyance to the lambs. Have some change of pasture for your flock, if possible, but do not put them on low, marshy land. Wean your lambs early and try to have a piece of rape ready to turn them out. Select your best ewe lambs to replenish the flock and either sell your lambs then or hold them until the winter. This, of course, will depend on the market outlook.

Now, as to the profit. This depends, as the old proverb goes, on "Good luck and good management." I believe that, for the capital invested, the amount of labor involved, and the risk, that sheep will to-day pay larger dividends than any other stock we keep. For example, take one hundred dollars; that amount will buy twenty good breeding ewes in the late summer; these ewes should produce twenty-five lambs at the least, and these lambs ought to, and will, if properly managed, bring you four dollars per head off the grass, or you will keep them for winter feeding until they are worth five dollars per head or more, making for you the amount of investment, at four dollars per head, and twenty-five dollars more at five dollars per head, if you feed them on, with the wool extra. What other animals will, for so small an outlay and for so little work, return such good dividends? Then, these twenty ewes and lambs can be kept on an average one-hundred-acre farm at a very small cost, indeed. By gang plowing your stubble ground intended for corn and roots immediately after harvest, sowing one-half bushel of rye and three or four pounds rape seed per acre, you will get a lot of fall and spring pasture, also you will germinate weed seeds which will be destroyed by the winter and the spring plowing, and your land will be in better shape for your next crop.

I am firmly of the opinion that the sooner we, as farmers, take hold of this rape question, the sooner it will revolutionize the sheep industry for us. Sow two or three pounds per acre along with your clover seed, when seeding barley or oats; sow it in your corn the last time you cultivate it. If you have any trouble getting a catch of clover, try gang plowing your wheat stubble immediately after harvest, sowing three pounds of rape along with your clover seed, and unless the season be too dry, you will get a stand of clover that will come through the winter all right. This is no untried theory, as we have had several heavy crops of hay seeded in this way.

In summing up there are a few things I would like to emphasize.

1st. Have good, strong ewes, and do not keep them if they are not good milkers.

2nd. Do not breed your ewe lambs the first year.

3rd. Use a pure-bred ram of some good mutton type.

4th. Dock your lambs' tails close.

5th. Castrate ram lambs.

6th. Shear your ewes early.

7th. Dip your lambs for ticks.

8th. Do not pasture on low or marshy land.

9th. That the average one-hundred-acre farm can carry from 25 to 40 breeding ewes, and, if properly managed, grow nearly, if not as much, produce as you would have done had you no sheep. These sheep will also enhance the value of the farm by keeping down all obnoxious weeds, which is no small contract if done by hand.

10th. Lastly, but by no means least, if you want to go into the ranching business right here in Ontario, I am satisfied that more money can be made out of sheep than in any other way. The scarcity of suitable farm help is forcing us to put our land in pasture more than we otherwise would have done. If gone at systematically, a one-hundred-acre farm can carry three hundred breeding ewes, from which can be sold fifteen or sixteen hundred dollars' worth of mutton and wool. The most of the time you may sit under a shade tree and watch the lambs grow.

DISCUSSION.

Q.—Is the quality of mutton of the pure breeds better than that of grades? A.—Andrew Elliott, Galt. Yes, as a general thing, it is finer in the grain.

Q.—Do you feed roots? A.—Yes.

Q.—Do you feed grain in winter? A.—Yes, I always feed a little grain.

Q.—When fattening lambs, is it better to confine them? A.—Yes, but not in a warm place.

Q.—Some say that the feeding of roots to ewes causes the lambs to become weak. Is this so? A.—That is not my experience.

Q.—Do you not think that the breeder is running too much on pedigree and not enough on the individual animal? A.—I want both.

HOW TO IMPROVE OUR LIVE STOCK.

By A. C. Hallman, Breslau.

No subject is of greater importance to the Canadian farmer at the present time than the one we are about to discuss for a short time, namely, "How to Improve Our Live Stock." It has been truly and well said that "Agriculture is the back-bone of the country," but a still greater truism is that "Live stock is the back-bone of agriculture." When we pause for a moment to think what vast changes have taken place in our system of farming in the last decade, and in the disposal of our products, we are amazed. The Ontario farmer, especially, has many problems to solve at the present time. The cheap fertile prairie lands of Manitoba and the Territories have opened up such large grain-producing sections, that it is impossible for the Ontario farmer, with his largely impoverished soil, to compete along that line, so that our only hope is to improve our live stock, or else we are driven to the wall.

I shall confine my subject chiefly to cattle, but what I will say about them will also apply largely to all kinds of live stock. How many of us have ever stopped to think over this matter? Does it merely mean to "perpetuate the species"? Wild animals do this. No, we must improve and make a careful study of what we are about to undertake. We must have an object in view. Because one man has made a success of a certain line of business, does not assure us that we are going to do the same, unless we do the same amount of hard work, and the same amount of thinking in regard to this particular line of business. The architect lays his plans, makes his drawings, and finishes his building on paper before he begins his actual work on the building. He sees the finished building long before it is started. The same is true of a successful stock-breeder. We must set up our ideal, then try and reach it. We must have fixed ideas, based upon the actual needs of the country, from the producer's and consumer's standpoint, or else we may be on the wrong track. It is the commercial animal that we must produce.

Everyone need not be a breeder of pure-bred stock, still he can do a great deal in assisting to improve our live stock. There is no excuse for any man not using pure-bred sires of all live stock, whether it is the horse, cow, sheep, swine or poultry. We should also be very careful to get hold of the breed that is best suited for the locality and our individual tastes, if we wish to attain to the highest success. We must aim to get individuals (males) of the highest type and breed along the lines we wish to improve on. We must observe the laws of heredity, and remember that the desirable qualities are fixed in the ancestors and remote ancestors for generations. They must be of the same uniform type. Right here is where much disappointment comes in. We may get hold of what seems a perfect animal, but when we begin to see the stock, we find he has not the power to transmit these good qualities to his offspring. It may have been the son of an impressive sire, but a broken link in the dam or some remote ancestor will do the mischief.

"Like begets like" is only true where the animals have the right strength of pedigree. Here is where so many get a very erroneous idea of the breeding of dairy cattle. Everybody would like to have a good milch cow, yet how few there are that are im-

proving their best privileges of obtaining it. When we look up the statistics of our cattle industry, we find that the dairy products are away in the lead. We only begin to realize the vastness of the industry when we see that the combined value of butter and cheese alone amount to thirty million dollars per annum. Add to this another fifteen million dollars in the bacon industry, which is largely a result of the by-products, and we have a grand total of forty-five million dollars. This is an enormous revenue—and looks large on the surface—as a product of the dairy cow, but when we find that there are about one million cows in Ontario to do this work, the result should either be much greater, or there should be fewer cows required to produce the same amount.

Here is where we must improve. Here is also a chance to help solve the labor question, viz.—fewer cows, better feeding, more milk per cow, less animals to care for, all brought about by better breeding and observing a few common-sense rules. If we could only raise the standard of the average Canadian cow 2,000 pounds more milk per cow, per annum, it would enormously increase the revenue. Taking the milk at only 80 cents per 100 pounds (worth $1.00 considering the by-products), this would mean $16.00 more per cow, or a grand total of $16,000,000. This is no trifling item, and might all be brought about by a little care in the selection and breeding.

The bull is the all-important factor. If he has the inherited qualities and tendencies, it is only a matter of a few years to largely improve a dairy herd. We should also aim at combining beauty and utility. This can be done, but it must not be done at the expense of the latter.

Development is another important point. A good cow is not capable of doing her best unless she has proper food, care and shelter. Weeding is as important as breeding. No breeder was ever so fortunate to secure pure-bred sires so that all his getting would measure up to the right standard. We must educate ourselves to know what is the right type. This can only be done by close observation and study. There are too many animals in a dairy herd whose carcasses are worth more on the block than the room they occupy in the stable. In conclusion I would say, get the best males you can buy, and don't be too close in buying. A few dollars more in an animal may mean hundreds of dollars in the end. Weed and feed liberally, and in a short time you will astonish yourself with the results.

CURING BACON AT HOME.

By Andrew Elliott, Galt.

Pork of some kind is yet an important item in the menu of the farm home, and the following system of curing bacon may not come amiss.

The carcass is allowed to cool, but not to stiffen to too great an extent. The head and the feet are removed, the spine is cut out in a wedge shape by a sharp axe, cutting down each side, with as little meat as possible attached. Next come the ribs and lard, while the shanks are cut off close to the body.

The salt used must be the very best—dairy salt preferred—and a few pounds of sugar, with two or three ounces of saltpetre, and a little pepper to every one hundred pounds of meat is an improvement.

Divide the half into three pieces, shoulder, side and ham, trimming the ham into proper shape. Beginning at the belly, roll the side tightly, and tie securely with twine, having salted it well with the above mixture before rolling.

Provide a thoroughly clean box about two by four feet, and of sufficient depth to hold the meat, rub lightly all over with salt and cover with the same; continue in this way until all the meat is salted; cover with a cloth. After two weeks remove and resalt, putting the top layer in the bottom of the box. Allow this to remain for two weeks longer, and, unless very large, the pieces will then be ready to dry or smoke,

just as preferred. Three or four days in the smoke house will be sufficient, when the pieces must then be hung in a moderate heat until fairly dry.

The box in which the meat was salted, when cleaned, may be used for the purpose of storing the dried meat, and there is no better place for this to be kept than in the cellar. Oat hulls, which can be procured at any oatmeal mill, are the best for packing purposes, although the dry oats will do. Put an inch or two of hulls in the bottom of the box, sprinkle a few handfuls of sifted wood ashes and place therein a layer of meat, fleshy side up, being careful not to let any piece of meat touch the side of the box. Pour around and over this the hulls until completely covered to the depth of one inch, sprinkle again with ashes, add another layer of meat. Continue this until the meat is all covered, being particular to cover the box tightly to prevent anything from getting in. Meat cured in this way will keep for a year and come out a little better than it went in, being much more palatable than when pickled in the ordinary way.

The heads and feet are carefully cleaned; the lower jaws removed and the ears and snout cut off. The jaws and upper part of the head, after being well soaked and washed, are boiled until the flesh parts easily from the bones. The feet, as well as the livers and heart, are boiled until tender. After being thoroughly cooled the flesh is removed from the bones of the head, and, together with the tongues, hearts, livers and trimmings, are finely minced and returned to the kettle containing the stock, in which the heads and feet were boiled. After boiling for about half an hour and removing the superfluous fat, this is dished up as head cheese, and can be used either cold or hot as desired.

HOG RAISING FOR PROFIT.

By J. W. Clark, Onondaga.

The first thing to be considered is the breed which answers best these requirements, for we must have a pig with a good length and fair depth; with an even distribution of firm flesh along the back, from the head to the tail; a pig with medium light jowl and good thickness of belly meat. The pig which answers these requirements is the large White Yorkshire; Tamworths are favored by many, but the packers tell us that Tamworths are deficient in ham and have thin, flabby bellies.

First crosses of either Yorkshire or Tamworth on Berkshire sows have given good results, but a higher percentage of first-class bacon hogs is obtained from pure-bred Yorkshires or nearly pure bred.

The selection of a brood sow is very important. Sows which have been penned up and forced from birth do not give as good results as sows which have had plenty of exercise, and given a chance to develop as they grow up. Do not have your sows farrow too young; better let them grow until one year before they give birth. Brood sows should always be treated kindly, in order that they may be quiet to handle, this being a great advantage at farrowing time.

Feeding a Brood Sow.

A great many farmers think that a brood sow can live on almost anything, and produce a good litter of pigs. Sows fed too largely upon roots or pasture, with a small grain ration to balance up, are very likely to produce weakly pigs. It is safer to feed largely upon bran before farrowing and for one week afterwards. Sows do better when they have an abundance of exercise and fresh air. They should be in their quarters for farrowing at least one week before due. Have your pen arranged with a bracket against the wall about one foot from the floor, to prevent the pigs being hurt. Watch your sow at farrowing time, especially if the weather is cold; many practice heating bricks and putting them in a large basket, covered with chaff, where the young pigs can be

placed until they are perfectly dry and stronger. This is a good practice, especially if the mother is restless, as many are at this time. After the sow is through farrowing, place all of the pigs with her, and see that they all nurse, and there will be little risk to run after that. Should the small pigs bite the sow's udder and make her restless while nursing, take a small, flat file and a few rasps will take off the sharp fangs on either side of the teeth. Avoid giving the sow too much food or drink directly after farrowing. Unless the sow is restless, it is better not to feed for twenty-four hours; a little warm drink being all that is really necessary. After the pigs are a week old, stronger foods may be added. Provide a small trough, where you can educate the little fellows to take some warm milk, with a little sifted oat chop added; pigs will grow much faster when fed in this manner. Always avoid as much as possible the young pigs getting into the large trough and eating the mother's food. Many pigs have their digestive organs ruined for life by this practice. Weaning should be done at eight weeks of age. Sows should be returned at least twice to be nursed out, after being taken from the pigs.

Food for Growing Pigs.

If the farmer has plenty of milk there is not much difficulty in raising young pigs, but many farmers have not sufficient milk. A few roots, cooked and mixed with oil cake, in connection with shorts, make a splendid food for young pigs. Pigs cannot be grown profitably on grain alone. They thrive much better in winter on a liberal amount of roots of some kind. The Danish sugar beet is relished by pigs, and makes a splendid root ration. In feeding roots and chop, many add water to mix up. By doing this you force your pigs to take too much water, especially in cold weather. Roots are said to contain 90 per cent. of water themselves, so that if water is added it has a tendency to wash all grains through the pigs before it is properly digested.

In the summer nothing is equal to a piece of lucerne clover near the barn, as it grows very rapidly and the pigs enjoy the fresh green feed, and gain very rapidly, if a little grain is added to balance up the ration. When pigs get to weigh one hundred and forty pounds, more grain should be fed in order to harden up the flesh and make a better quality of pork for the packer. The greatest profit is obtained by getting the pigs off before they reach two hundred pounds live weight. Pigs, to make first-class bacon, should be fed slowly, and not forced too much. We are told by the packers that a much smaller percentage of soft and thick fat comes from pigs fed for eight months, as pigs forced to weigh two hundred pounds at five and one-half or six months are apt to cut thick fat on the shoulder and back.

DISCUSSION.

Q.—Do you advise feeding whole grain to hogs? A.—J. W. Clark, Onondaga. It pays to chop it if you have to pay 10 cents per head to have it chopped.

Q.—How do you feed alfalfa to hogs? A.—Sow an acre or so near the buildings and place hurdles so that they can be moved every week to a fresh plot. Also by cutting the hay up fine with the cutting box and scalding it they do well on it if mixed with chop.

Q.—Will they fatten on that in winter? A.—No, it is only to get them up to about 125 pounds, then they require to be finished with grain for the packer.

Q.—What causes pigs to get crippled or foundered in winter? A.—That is largely due to the feed, too much food rich in carbohydrates and fats, such as corn, etc., upsets their digestive organs. Feed foods richer in proteid, such as oats and bran.

Q.—What is best to do for a pig crippled or foundered? A.—Give some physic, such as oil or salts.

Q.—What is best? A.—Oil is the easier given, for a pig that will eat at all will drink linseed oil in milk.

Q.—How much oil do you give a pig? A.—It depends on the size of the animal, but from 6 ounces to 1½ pints.

Q.—How would you put it down a large pig if it were too sick to eat? A.—Get a piece of rubber tube two feet long, and place it in the pig's mouth, holding the nose up by a rope, and in this way there is little danger in choking them.

Q.—What would you give a sow that eats her pigs? A.—Sows eating pigs is caused largely by the owner not giving the sow suitable feed and exercise. Sows carrying a litter of young require a balanced ration of grain and roots, with a liberal supply of charcoal, salt and sulphur.

Q.—Would you advise the pulling out of black teeth in pigs? A.—Black teeth do not hurt pigs; it is only a fancy.

Q.—How long would you starve a sow before farrowing? A.—I would not starve her at all, but feed a light ration, composed largely of bran.

Q.—How would you feed a sow after farrowing? A.—If she becomes restless and looks for food, give a small amount of bran in a little milk. There is no safer or better feed for a brood sow during the first week.

Q.—What is the cause of young pigs about six weeks old losing the use of their limbs and dying? A.—It is largely due to indigestion, caused by feeding the sow too much food rich in carbohydrates and fats.

Q.—Can you give any reason for a sow having a number of runts? A.—Usually two are to blame, viz., the man who keeps the boar and the owner of the sow, by not giving the boar suitable food and exercise and allowing excessive service, for one good service is much better.

Q.—In weaning pigs, would you leave the runts on the sow for a while? A.—They will gain very quickly by so doing and it will help the sow as well.

Q.—What is the best food for young pigs after weaning if milk is scarce? A.—Cook roots and mix oat chop or shorts, adding oil cake. Mix while hot.

Q.—Does it pay to cook feed for pigs in winter? A.—That depends on the age of the pigs, cost of wood and labor. The young pigs do much better on the warm cooked food, as it is easier digested.

Q.—What breed of hogs would you think best for general use? A.—The Yorkshire seems to be favored more than any other breed by packers. Crosses of Berkshires and Yorkshires, or of Berks and Tams answer well.

Q.—What way would you cross? A.—Always use a Yorkshire sire and a first cross only.

Q.—What about Poland China or Chester Whites for bacon hogs? A.—They are all right if you have the proper type, but the packers do not care to allow them to compete at our large fairs.

Q.—Which is the cheapest hog to feed, Yorkshire, Tamworth or Berkshire? A.—I think I can produce as much weight per pound of feed in Yorkshire as in any other breed and have a much better bacon hog.

Q.—How about the Tamworths as bacon hogs? Are they not as good? A.—The Tam. is a fairly good bacon pig, but the packers tell us that they do not make as good a Wiltshire side, being light in ham and thin in belly.

Q.—What breed are the farmers in old Ontario raising most of? A.—The registration shows that the Yorkshires are double that of any other breed. The Berkshire comes next, with only half as many, and the Tamworth about half as many as Berkshire, and some of the fatter varieties have dwindled down to almost nothing.

Q.—What prices would you have to pay for good registered Yorks? A.—It all depends on the quality and size. At the Yorkshire sale in Guelph last fall good sows

brought from $30 to $50 on the average; while some fancy ones ran up to $325 by American buyers.

Q.—How can we induce packers to send buyers up to New Ontario for our hogs? A.—By raising a better bacon type of hog.

Q.—Would you cross a grade sow back to a pure-bred boar of the same breed? A.—T. G. Raynor, Rose Hall. It would depend on the object I had in view. If for bacon pigs I would prefer to use a pure-bred sire of another breed. If I were grading up my stock then I should breed back to sire of same breed.

Q.—How much skim milk would you feed a pig ranging from 50 to 150 pounds? A.—About three to five pounds would give the best results. This would mean about 20 cents per hundred for skim milk. By feeding twice that quantity I would only expect my skim milk to be worth 10 cents per hundred pounds.

Q.—Why don't you like bran in feeding pigs? A.—I do not condemn it, but it is too bulky for young pigs. It is all right when fed in limited quantities with concentrated grains to older pigs and to brood sows.

Q.—What is the value of apples for feeding? A.—About the same as roots.

Q.—How much skim milk could be fed to advantage to a pig of 100 pounds? A.—Dr. Henry G. Reed, Georgetown. About six pounds per day, which is equal to six quarts.

Q.—How old is a brood sow usually profitable? A.—As long as she will raise two litters of pigs in a year; eight or ten pigs to the litter.

Q.—Why do pigs like sods so well in winter? A.—It is to satisfy a depravity of appetite induced by feeding concentrated foods. It corrects and tones up the stomach of the pig.

Q.—What foods are good for brood sows? A.—Those foods known as bone and muscle-forming foods, such as we find in pasture, milk, buttermilk, clover hay, roots, bran, peas and oat chops.

Q.—You said you would not choose a brood sow out of a fall litter. Why? A.—Duncan Anderson, Rugby. Because the fall pigs have to be penned up too much. They do not grow as lengthy as the spring pigs that are on the grass. They develop more muscle and bone from getting plenty of exercise.

Q.—You also said you did not want sows from the first litter of a young sow. What is your reason? A.—Often a sow's first litter is not as well developed as her third or fourth litter. As a mother she has not as much milk to support her young with at her first farrowing. Spring litters, when the sow is at her best, from two to four years old, is the best to select young sows from.

Q.—What is wrong with the curly-haired sow? A.—Too often curly hair in a pig is harsh, wiry and hard, and is often accompanied by a dirty skin. In selecting sows be sure to get them with straight, soft, medium long hair and clean skin. The skin and hair are the best indications of the feeding qualities of an animal. We must have the good doer to grow hogs profitably.

Q.—What about the Yorkshire and Tamworth cross? A.—They are all right, and make fine bacon hogs.

Q.—What is your reason for insisting on keeping Yorkshire sows to cross with Berkshire or Tamworth males? A.—Because my experience and observation have shown me that they are better mothers, more docile, and much more prolific than any of the others, and are not as apt to get fat and clumsy as they get older.

Q.—At what age should a sow have her first litter? A.—At from 11 to 13 months. A sow should be well fed when young, but not on heating concentrated food.

Q.—What is your reason for saying you would not build a stone pig pen? A.—Because after a very cold dip in winter, with the thermometer 10 to 15 degrees below zero, the frost coming out of a stone wall causes a cold, damp, chilly feeling, and this is detrimental to the health of the pigs.

Q.—Have you ever seen little pigs die suddenly when on the mother? What was the cause? A.—When the sow is a good milker and the pigs are fat and plump, if they are confined too closely to small pens and the sow is highly fed and does not get much exercise this will be bad for the health of the pigs. Pig sows, or sows raising their litters, should not be penned up. In summer they should have the run of a pasture, and in winter should have a run of a few hours each day in a warm yard or roomy shed.

Q.—What is the best way to feed unground grain to hogs? A.—If I were going to feed whole peas, for instance, I would feed them in the straw, for I find they give better results than when threshed and fed in the troughs. If unground grain is to be fed it should be scattered in a clean place, either on well-packed, clean ground or better, on a plank or board floor. The hogs then have to pick up single grains and crack them as they pick them up. A hog's time is not very valuable. When fed in troughs the grain is bolted, and much of it comes through the stomach undigested. There is a profit in grinding all grain for feeding hogs, and feeding it either dry or very slightly damp. At Grand Prairie, in British Columbia, a fertile valley of about 12,000 acres, they make hogs their principal money crop. The hogs are grown and raised on clover pasture, and gleanings of the stubble land. They are finished entirely on peas fed in the straw. The peas are harvested and stacked and fed to the hogs once a day. They are kept busy getting the peas out of the straw. But if they were threshed and fed unground the pigs would pick them up in about half an hour and would soon be howling for more food. They feed a load of peas daily to 100 hogs. Out there they only thresh such peas as are required for seed. Some of the farmers grew 80 acres of peas last season, and several of them had over 300 hogs. Nearly all were either Berkshire or Yorkshire, with a few Tamworths and Chester Whites. Pork is consumed by the miners, lumbermen and the Chinese.

Q.—At seven dollars a hundred for hogs, live weight, would it pay to feed a small quantity of whole milk to young pigs for the first three weeks after weaning? A.—It would be very expensive feed, but the price of hogs is high. There is no doubt that a small quantity of butter fat in a weaning ration would make excellent feed for the first two or three weeks. I have never tried it.

Q.—Is it best to have breeding sows compact, closely ribbed up with a small packed loin? A.—Brood sows should have a firm, well-knit back and loin. If a sow, when young, shows the least sign of lagging in the back before she reaches her best she will have a hollow back. Every litter she carries will tend to drag her back further down. I like an open, roomy sow; one not too closely ribbed up. They are better milkers and are also more prolific. The male should be long, close-ribbed, with a well-packed side and loin and a firm back. Quality in the male is important.

Q.—You say skim milk and shorts is the best ration on which to wean pigs. If you had not skim milk, what other food would take its place? A.—Boiled roots, pumpkins, or potatoes. Mix the shorts with the cooked roots when hot. Do not feed it sloppy. Make it as stiff as mason's mortar. It does not require as much shorts when there is not too much water put in. This mixture, slightly warm, fed four times a day, is the next best feed to skim milk and shorts.

Q.—Is it best to have pigs in fit condition for the market at any time? A.—No. Some years ago I used to think it was the best way, but close observation has taught me

that far better results are obtained by growing the pigs until they are five, or five and a half months old, and then finishing them on a good meal ration for five or six weeks. They keep in better health, have a stronger bone, and when finished have a larger percentage of lean meat than when kept fat from birth.

Q.—At what age do hogs make greatest gain for food consumed? A.—When they are growing between 70 and 180 pounds. This is the most profitable time in a hog's life. When they get over 200 pounds live weight it takes more meal to make a pound of pork than it does when they are under 175 pounds. This was fully tested at our Experimental Farm.

HOW TO SELECT BEEF CATTLE.

By John Gardhouse, Highfield.

In selecting beef cattle it is very imporant that you be a good judge; in fact, an expert. You should know exactly what you want, whether selecting steers for feeding purposes, or selecting animals for the breeding of steers. There are two modes of procedure for the ordinary farmer in obtaining steers for beef purposes, namely, for him to breed them himself, or buy and feed them. The second plan I consider the better way, provided he can find at his option a sufficient number of animals from which to make a selection. The greatest difficulty feeders experience is that they cannot find suitable animals in sufficient numbers to meet their requirements.

In selecting steers you should first see that their ancestors are of a good beef type. It is not necessary that their dams be pure-bred. Speaking generally, well made cows with good breeding in them are suitable. They need not be eligible for registration or have any fancy pedigrees, but should be of a good type and entirely free from any dairy crosses. The sire should by all means be pure-bred, a prepotent sire, and one that will impress his essential qualities on his offspring. He should be masculine in his appearance, and a model of the breed he represents, or as nearly so as possible.

Having mentioned the ancestors, we shall try to describe the most profitable type of steer; one that should produce the greatest weight from the least amount of food consumed. We shall commence with general appearance. I like a stylish steer, one that carries his head up, and walks with an air of dignity. The head is regarded by many as an indication of general quality. We like to see a moderately broad muzzle, with a wide mouth and a good, large, open nostril. The eye should be large and prominent, but by no means wild. The horn should not be coarse or spiky. A flat horn is preferable to a round one. The head of an animal with these qualities usually goes along with a good, thrifty steer.

The neck should be strong and thick, but not long, as a long scrawny neck indicates a poor feeder, a lack of capacity generally, and a weak constitution. The shoulder should be smooth and blend with the neck. The chest should be of good width, the legs moderately short, and set well apart. All animals should have a good heart-girth, with a well-filled fore-flank, as this fulness indicates heart capacity. Coming to the barrel, we want well-sprung ribs, a good depth of body and also a great width, the greater the better, if we have smoothness combined. The back should be straight and the loin strong. The hook-bones should be wide apart, and should be smoothed off roundly, not standing up, but well covered and showing no tendency to coarseness. The pin-bones should also be smooth, as a rough animal there is likely to become patchy. They should also be a fair width. The thighs should be thick and deep, the lower and the thicker the better. There should be as much meat between the thighs as possible, and it should be well carried down to the hock.

In reference to handling, we want uniformity in the quality of the flesh, neither soft or hard, but silky and mellow to the touch. The hair should not be coarse or wiry, but should be fine, soft and furry, with an abundance of it. Many people say that an abundance of hair is a sign of strong circulation.

If you can procure animals of this type you are working along the right lines and there is little danger of loss, as the buyers, even though the market should be overcrowded, will give us a fair price if we have a good article. But we must have an ideal before us and produce it if we are going to get the best results.

In the breeding and selection of live stock of any kind, it is very important that we have an abundance of intelligence combined with energy and we are bound to make a success.

FEEDING HOGS.

By F. C. Elford, Holmesville.

The subject of feeding hogs is an old, and in some respects a threadbare one, still the way that some are fed leads us to think that there is still something to be said. Ask a man nowadays if there is money in pigs, and almost invariably the answer will be that there is, that he had perhaps just sold a number for $6.50 or even $7.00 per hundred weight, but how many of us really know what our hogs cost us per pound ? Hogs have been high for a few years, so has grain, and if we have fed our hogs on grain from the time they were weaned until marketed, I doubt if there is as much money in them as we suppose.

A man in this country, who was considered a successful hog feeder, found that he fed, by actual count, $200 worth of feed to a number of hogs, which, when sold on a good market, brought him $160, leaving a balance of $40.00 on the wrong side. He made on the hogs, but lost on the feed.

The hog was originally a grazing animal, nature never intended him to be stall-fed from start to finish. The opinion seems to be becoming more general that soft pork is caused by rushing pigs on to the market at five or six months of age, when they are still immature. We have followed the practice of grazing our hogs on lucerne paddocks during the summer months, giving the young pigs as good a start as possible on some by-product of the cow, skim milk or buttermilk, and giving the 160 pound pig about one month's feed on grain to finish him. During the fall we supply this succulent food from a paddock of artichokes, in the winter it is given in the form of roots. We do not get our hogs off at six months, weighing 200 pounds. It is about eight months before they are marketed, but I am convinced thtat we have a firmer and, by all odds, a cheaper product.

After careful counting we contend that we can produce a pound of pork in the summer or fall for from two and one-half to three cents. Sometimes we feed a light ration of grain along with the grazing. In this age, when hired help is such a problem, sixty to one hundred pigs, fed in this manner, will nearly save the wages of one man. If this method were going to have a tendency to damage our old country market, it should not be adopted, but as far as can be learned, the product is of superior quality, the cheapness being only in the production.

DISCUSSION.

Q.—How long can you pasture lucerne ? A.—F. C. Elford, Holmesville. It is the earliest crop, and can be pastured from May until the frost comes. Care must be taken, however, not to pasture it too closely.

Q.—Have you any way of giving the younger pigs extra feed, when both big and small run in the clover? A.—A small door into the pen does the grading. When a pig is too big for it he does without the extra feed.

Q.—What is the best breed of pigs? A.—There are good ones in all bacon breeds. I think that individuality counts more than breed.

Q.—How can you sow artichokes? A.—Same as potatoes; plow under every third furrow, or in hills.

Q.—Is there much work entailed? A.—Sowing and cultivating the field the first year, after that what cultivation you can give them. If they come up too thickly in the spring run the scuffler through, leaving them in rows.

Q.—How do you harvest them? A.—Turn the pigs in.

Q.—Do you advise cooking for hogs in winter. A.—G. C. Caston, Craighurst. If you have litters that come late in the fall or early in the winter, it would be better to cook the food for them for a while after weaning. In that case I would cook the pulped roots together with shorts and bran and a little finely ground oats. If you were raising a large number of hogs and were building a modern pen for them, it would be advisable to have a small cooking apparatus in the feed room. For larger hogs, if in a comfortable pen, there is no need for cooking.

Q.—Would you feed brood sows on roots during winter? A.—Yes; but they should get a small grain ration as well; it will not do to feed them entirely on roots.

Q.—Do you think it necessary to have both roots and ensilage? A.—Not absolutely if you have one. Either of them is a fairly good substitute for the other, but at the same time it is wiser to have both. It will pay.

Q.—Will it pay to have brood sows farrow in winter, and are winter litters advisable? A.—Yes, if you take good care of them. They must have a warm pen and as soon as they are large enough to get outside, let them have outside exercise every day when the weather will permit. Let them have skim milk as soon as they are old enough to drink it. They should be allowed to suckle a little longer in winter than in summer.

Q.—What is the best food for young pigs after weaning in winter? A.—Pulped roots, shorts, bran and a little finely ground oats, all mixed together, and a little skim milk. If a cooking apparatus is available. it would be better to cook the mixture for them for five or six weeks.

Q.—Would you cook the skim milk, too, along with the rest? A.—No, but give it to them along with the cooked food. Whey, buttermilk, any by-product from the cow is an important part of the ration for growing hogs.

Q.—Would you cook the pulped roots along with the rest of the food? A.—Yes.

Q.—What is the cause of pigs going off their feet in winter? A.—The common cause of this trouble is too close confinement and feeding too much grain. In other words, it may be said to be attributable to the same cause as the complaints that were made of soft bacon, namely, forcing, and trying to make the hog weigh 200 pounds at the end of six months instead of eight months. I consider the main points to be, first the right type of hog, thrifty growth, not overfeeding nor allowing them to become stunted. Give them lots of outdoor exercise and a chance to get at the ground and root. Give them skim milk or whey as part of their ration, succulent food in winter and comfortable quarters. I like to hear them squeal for their food at meal time; it is not a good sign to see food left in the trough. And last, but not least, allow them eight months to get to 200 pounds.

Q.—Will the long hog feed as economically as the short thick hog? A.—G. H. Hut-

ton, Easton's Corners. Experience proves that the proper type of hog gives even better returns and is more satisfactory.

Q.—Do you think the feeding has more to do with the production of soft pork than breeding? A.—I believe we must breed for type and feed for quality. We can take any superior type of hog and produce an inferior quality of bacon by improper feeding, and we will find it a matter of great difficulty to produce a Wiltshire by proper feeding from the thick fat hog.

Q.—What kind of roots do you prefer for hogs? A.—Andrew Elliott, Galt. Mangels and sugar beets.

Q.—Do you give your hogs water when feeding them roots? A.—Yes, if they need it.

Q.—Is silage good for hogs? A.—It is not so good as roots.

Q.—Would you stop feeding roots when finishing? A.—No, but I would feed less.

Q.—How do you feed clover to your hogs in winter? A.—I run it through the cutting box, and dampen it before feeding. There is no better food for growing hogs than clover.

BREEDING THE LIGHT HARNESS HORSE FOR PROFIT.

By A. C. MacMillan, Erin.

In the first place I will say that every breeder who expects to breed the harness horse for profit should begin, if possible, with a good mare. If he already owns one, he is ready to begin, if not, and he has any horses that he can spare, I would advise him to sell one and purchase a good mare; one of good size, with plenty of substance; with as much bone as possible, and with lots of quality, but with quality always in preference to quantity. It is rather difficult to get large bone without coarseness, and this, in my opinion, is very undesirable in the light harness horse.

She should have the best of legs and feet, free from all hereditary blemishes, pasterns must be of good length, well set back to give free, easy, springy action. She should stand straight and plumb on all her legs, the head should be neat, clear-cut and bony; the eye should be full and intelligent; the neck of good length, and well-arched, with a clean-cut throttle; the withers prominent, with deep sloping shoulders; the back short, with broad, strong loins; the body round, with the ribs well sprung; the quarters should be long, full and well carried down, having a free, trappy movement. Above all, the animal should have a good disposition, as this is a very desirable quality in a good harness horse.

Breed to the best sire within your reach, regardless of the fee, as long as it is within reason. Select a sire possessing as many good qualities as possible, with a special view to action, as high action is absolutely necessary in the first-class harness horse.

When the foal arrives give it as good a chance as you can. Let it learn to eat grain while with the dam, then when weaned, feed it liberally and give good care. I do not believe in pampering, but keep it in good growing condition. For feed I prefer good, clean hay, oats and a little wheat chopped and mixed with bran, giving boiled oats and bran each night, with a few roots. I approve of feeding bran because it is a bone-forming food, and helps to keep the bowels loose and in proper condition. The feed box should always be thoroughly cleaned before the new feed is put in, as the horses like clean feed as well as human beings.

The colts should have daily exercise without undue exposure. Care and judgment should be used in the handling of them in order to prevent accidents. If a number of

colts or horses are turned out into the yard together, do not send the dog after them if they refuse to go into the stable again when called. If you do this they are likely to make a rush into the stable and some may be injured. It does not pay to race the horses, but rather to drive them in quiet ly. You also find that it pays you to exercise patience in the management of horses, as well as with all other kinds of stock.

The education of the colt should begin when it is quite young. It should be handled and halter-broken while yet with the dam. All colts should be thoroughly broken to the bit, and taught the general terms used in driving, before being hitched to a vehicle, and you will find that they will be very little trouble afterwards. To all who have have never attended the school or studied the system of any good horse educator, I would say, "Invest two or three dollars in a book of this kind, study the system, put it into practice when educating the colt, and I will guarantee that you will be perfectly satisfied with the investment." I advise this because I think that many horses are spoiled from lack of knowledge on the part of the educator and because some people think that a horse should be taught everything by the use of the whip. Mr. A. H. Rockwell, a prominent horse educator, says, "The whip should be used to insure promptness, not to teach."

I presume that I will be expected to say something in regard to the breed of horses best calculated to produce the high-class harness horse. Without being prejudiced and without wishing to injure or speak disparagingly of any other breed, but after long and careful observation, and an experience of over twenty years with stallions of different breeds, my preference has long been decidedly in favor of the trotting-bred coacher. Perhaps you will expect me to give my reasons for this. In the first place the trotting bred horses are the highest-priced harness horses in the world. For example, Arion, 2.10, 3-4, two years old, $125,000; Axtell, 2.12, three years old, $105,000; Maud S., 2.08, 3-4, $40,000; Dexter, 2.17, 1-4, $35,000; The Abbott, 2.03, 1-4, $25,000; Dare Devil, 2.09, $40,000. Now I made add a few from a big auction sale in New York last November. Gail Hamilton, three-year-old filly, $6,000; Nella J., three-year-old filly, $4,500; Pleasant Thought, one-year-old filly, $4,000; The Main Thing, one-year-old filly, $1,500; Parachute, two-year-old colt, $1,250; and at W. D. Grand's sale in New York last November, when Mr. C. K. G. Billing's high steppers were sold, one pair brought $4,300, another pair $3,200 and the total for thirteen head $12,880, an average of about $991. These are only a few of the hundreds which I might mention.

Then I say that they can defeat any breed of horses in existence, as a harness horse in the show ring. As a proof of that assertion take all of the large shows, viz., the National Horse Show at Madison Square Gardens, New York, at Chicago, Boston, Philadelphia, and at these and all the great shows they were the champion winners. As for style, speed and action, they can beat any horse in the world. The Horse Review of November, 1902, in its report of the National Show, says: "The exhibits in the trotting class were not large, but were high class." This does not mean, however, that the trotting horse was not in the Gardens in large numbers, for in the runabout, the four-in-hand, tandem, and in fact in every kind of an open harness class the trotter was there, and, it is needless to say was the winner. It is an undisputed fact that he can beat any and all other breeds at any contest of this kind. For instance, Ernest Fownes, the crack English whip, whom ex-Mayor Hugh Grant induced to come over here and tool Mr. Billing's horses in the show, and whose driving in the four-in-hand contest excelled anything ever witnessed in the Garden, made the following remark, when he was questioned as to his opinion of the trotting horses: "They are simply wonderful horses, the best the world has." This from an Englishman, who, undoubtedly, has seen and

perhaps handled the best harness horses in England, is saying a great deal for the American-bred trotting horses.

I claim for the trotting-bred horse the greatest power of endurance of any harness horse in the world, for they hold the world's record for all distances. Let me cite you some instances:—½ mile, Major Delmar, 1.01; 1 mile, Croesceus, 2.02¼; 1⅛ miles, Major Delmar, 2.22½; 1¼ miles, Lily Young, 2.44; 2 miles, Croesceus, 4.17; 3 miles, Night Gale, 6.55½; 4 miles, Senator L., 10.12; 5 miles, Gambra, 12.24; 6 miles, Longtime, 16 minutes; 10 miles, Pascal, 26 minutes 15 seconds; 18 miles, Bill, 58 minutes, 10 seconds; 20 miles, Capt. McGowan, 58 minutes, 25 seconds; 30 miles, Gen. Taylor, 1 hour, 47 minutes, 59 seconds; 50 miles, Ariel, 3 hours, 55 minutes, 40½ seconds; 100 miles, Conqueror, 8 hours, 55 minutes, 33 seconds, all trotting-bred.

It is only a few years since the education of the trotting horses as high steppers began, but since that time they are simply unbeatable at any game in harness. They are the champions in every country to which they have been imported or exported. The champion harness horse in England for the past two years has been an American trotting horse. In Russia, Germany, Austria and everywhere they have gone, they are champions.

Peter Miller, one of the largest exporters of American-bred coach horses to England, in a recent interview expressed the conviction that the American roadster was the par excellence light harness horse of the world. In an experience extending over many years as an extensive dealer and importer, and after a comprehensive trial of the horses of Ireland, Germany, France and Hungary, he says that his decisive preference is for the American trotting-bred coacher. (Mirror and Farmer, May 8th, 1902.)

And so I say that there are no good qualities in any harness horse which the trotters do not possess, and that to a large degree. There is no game at which a harness horse can play, at which the trotter cannot defeat him. They do not need to be crossed with any other breed that lives, in order to give them good qualities, for, when judiciously mated, they possess within themselves all the good qualities which go to make up the ideal harness horse. I am satisfied that any breeder who will breed the right kind of trotting coach horses, and give them proper care and attention, can not only do so with profit but with pleasure and credit to himself and to the country in which he lives.

I do not wish to be understood as advocating the breeding of trotters as race horses, by the general breeder, for the breeding and developing of race horses is a business by itself. The trotting-bred coach horse furnishes a horse of size and substance, with style and action suitable for harness purposes.

THE PRODUCTION OF BEEF.

By Andrew Knox, South Dummer.

Never has the outlook for beef cattle been more favorable than at the present time, and in discussing the subject with some of our old stock men, they claim that beef has never sold so high since about 1883 as it has this season. I think that with this outlook before us, it should stimulate us to produce the very best class of animals that we can.

Never have we had such a demand for good young cattle as we have at the present time, from both foreign and local buyers, and this should be a great encouragement to those interested to breed the right class of stock.

It is only a short time since I heard of some calves selling at from one to two dollars per head, and, at the same time, I know of farmers who are getting as high as

twenty-one dollars for good grades. It surely must be discouraging to handle cheap animals, and why not, at this opportune time, take hold of the business properly and make this part of the country a breeding ground for the great West and other countries. There never was a better place than right here, as the land is well watered and produces abundance of fine pasture, and, with the present modes of supplying winter feed, everything seems to be in our favor.

The one point to be considered is that if we do not produce a good article we cannot expect a good class of buyers. If we had an abundance of the right class of cattle we would find that we could not produce them fast enough, but, as matters now are, it does not take long to go through the country and cull out those suited for shipping purposes. In talking to some buyers recently, they told me that they could buy yearling steers for nine or ten dollars each, delivered, and who is making the profit, I cannot understand. There must be a very small investment in the first place, or no one could sell at that price.

Some may be inclined to ask me what I consider the best breed of cattle to raise, but for certain reasons I will not answer this at present, only be sure to breed something that will mature quickly, and pay you well for your investment. Again, some may ask, "How are we to get the right class of cattle?" Answering, I would say, "By using the best sires that it is possible to procure." Prof. Day, in his lecture on "The Ideal Steer," gave out some good ideas. He claimed that the best steer he ever fed was got by a sire of the right type. There is, of course, a great diversity of opinion regarding the best kind of animal to use. Some prefer the coarse-boned type; I have heard people say that if they could get the frame, with lots of bone, that they would have a sire to suit them exactly. I do not agree with this theory, however, for when I buy beef I want meat, and not bone. Allow me here to give you a short description of the animal I would select, and one that in my opinion will make a good sire. He must be well set on short legs; good length of body, with well-sprung ribs; a short, thick neck, well arched; good, deep brisket (not flabby); well filled behind the shoulder, with good heart girth; a broad back, with a straight line from the shoulder to the butt of the tail; broad and smoothly turned around the pins, with not too coarse a tail, well set in; the hams well sprung, with meat low down, not only outwardly, but inwardly, and in order to get a good feeder, get an animal with sufficient capacity. The animal should be covered with a mossy coat of hair.

Whence once the animal is bought, the next thing is to know how to feed properly. There are many methods of economical feeding; some use the ensilage, with meal and a roughage of straw and hay, while others use roots and meal, with a roughage of straw and hay. I think either of these are good, but it is better if you have them both, as there is nothing like a variety of feed. This, of course, is referring to winter feeding.

When feeding matured animals it is best to cut the hay and straw, and mix with ensilage and pulped turnips. I do not think it well to mix the meal with these, as it is very likely to give too much meal to some and not enough to others; when feeding the meal by itself you are better able to give it judiciously, and by sprinkling the meal over the other things the cattle eat the roughage more readily. I have found it best to allow the mixed feed to stand for twenty-four hours before feeding. Do not give more than can be eaten up clean, as there is great danger of stalling the animal.

For regular winter feeding I find it advisable to feed cut stuff the first thing in the morning and the last thing at night, with a feed of hay in the middle of the day. Be careful to give your cattle lots of bedding and a comfortable place in which to lie, as well as plenty of pure air and good water. Another important thing is to see

that the skin of the animal is kept clean and free from vermin; there is no time better spent than by combing and brushing the cattle, for, aside from keeping the skin clean, it accustoms them to handling and quiets them.

Before concluding I will give a few ideas on feeding and caring for the calves. Always give a calf as good a start as possible, as the care it receives at first decides its future well being. If you do not care to raise it on the mother, give it plenty of feed, without overdoing it. It is not well to urge it too fast the first month, as it is very liable to sicken, and a calf at this age is very easily killed by kindness. Some people claim that they can raise calves on whey and buttermilk, with a nice patch of grass, and I have seen calves very good when raised in this way, but the majority have not amounted to much. A very easy way to raise calves on the pail is to grow a piece of flax each year, thresh it, and boil the seed whole by itself; when about cool stir in a little of this into a dipperful of sweet milk, and feed to the calf with a few handfuls of oat chop. This, with plenty of clover hay and an occasional combing will well repay you for your trouble. Keep your calves well housed in a roomy box-stall until the worst of the flies are past, and then let them into a piece of second-growth clover, with lots of water, and if you want them particularly nice continue to feed whole oats or chop.

When the calves are again brought into winter quarters they may be fed in the way I have mentioned for the mature animal.

DISCUSSION.

Q.—Is it possible to get a good milker and at the same time a good feeding animal? A.—T. McMillan, Seaforth. Yes. Much more attention is now being paid to what is known as the general purpose cow. This question is now being so keenly considered across the line that at the last Chicago Fat Stock Show the sum of $1,000 was set apart as premiums for the best general-purpose cow. The prize was to be given upon the following basis:

1st. The general conformation and appearance of the cow as a beef animal.

2nd. Her results as a milk producer.

3rd. The excellence of her offspring.

Q.—Is it a fact that the offspring of some of our best milking cows are valuable feeding animals? A.—Very often so. It is a noted fact that in many herds the best milking cows have been the dams of valuable feeding animals. At the Wisconsin Experiment Station a Shorthorn cow that gave 585 pounds of butter in a year at six years of age gave birth to a calf, which at 32 months weighed 1,700 pounds. Another cow, aged six years, gave 484 pounds of butter in one milking period and produced a steer which at 33 months of age weighed 1,678 pounds. Many farmers state in their personal experience that they have found some of their best breeding cows were also their most valuable milkers, and it is a noted fact that the great percentage of the milch cows of Great Britain are Shorthorns.

Q.—Why is it that the quality of Canadian beef cattle in the British market has declined, when compared with American cattle? A.—One great reason is the indiscriminate method of breeding followed by farmers who formerly had milch cows of a fairly desirable type for beef purposes. In practice they seem to have forgotten that the reason our best animals of the different breeds have attained their present degree of perfection is due to great care and judgment in selection and mating, and in their anxiety to perhaps obtain a better quality of product from their cows, have crossed, say, first to a Jersey male; next, wishing a greater quantity of milk, they have bred to a Holstein male; and then, as the cheese business became prominent, they thought to ob-

tain their ideal by using an Ayrshire male, and as a result of such lack of judgment in breeding, the law of reversion has asserted itself to such an extent that we now see in the stables of many dairymen the most magnificent specimen of the scrub cow that the world has ever seen. I do not wish to put a damper upon the dairy business by advising dairymen not to use special dairy breeds, but I would urge all dairymen to settle in their own minds what breed of cows they intend to work with, and, having done so, stick to that breed, and do not continue mingling the different breeds so indiscriminately as has been done in the past.

Q.—Is it a desirable practice to breed largely from young, immature male animals? A.—No, this is a great mistake.

Q.—Is it a good practice to allow cattle outside daily during the winter? A.—It will do no harm, but I do not follow that method. If I do I notice that whenever the door is opened they are ready to go back in.

Q.—Is it profitable to sell steers at two years of age as stockers? A.—It may be so, but it is much more profitable to sell them at the same age as fat cattle. This is what the most successful feeders, who finish the cattle of their own raising, do.

Q.—Should young calves be kept in loose boxes the first summer, or let out to pasture? A.—The best calves can be produced by keeping them inside, but they should be let out a little the first fall to teach them to graze, or they will go back for a week or two when turned to grass the following summer.

Q.—What do you substitute in place of the butter fat when feeding young calves skim milk? A.—A mixture of ground flax seed, oats and bran.

Q.—Should young calves have a grain ration all of the first summer? A.—Yes, and always while in the stable.

Q.—Should cattle have all of their bulky fodder given in the form of cut feed? A.—No, they relish a change and enjoy a feed of long fodder occasionally, and should have it.

Q.—Do you find that it pays to buy animals in good condition for feeding? A.—Yes, animals which have been well attended to up to the time we buy them are usually the more profitable animals for us to buy and handle.

Q.—How much grain would you feed to an animal of 1,000 to 1,200 pounds? A.—Andrew Elliott, Galt. About 8 pounds a day when near the finishing period.

Q.—How would it do to feed silage and chop together? A.—It is all right.

Q.—How does corn fodder compare with silage as a food? A.—They are about equal, if the corn has been well preserved.

Q.—How much silage do you feed per day? A.—About a bushel.

Q.—Which are the best for dairy cows, turnips or mangels? A.—Mangels. Turnips should never be fed to dairy cows when giving milk.

Q.—How much silage would you feed to steers? A.—T. G. Raynor, Rose Hall. Not more than from 30 to 40 pounds per day.

Q.—Would you feed straw with it? A.—If straw is to be fed, it is better to cut the straw and mix it with the silage.

Q.—How much grain would you feed with silage and cured peas and oats, to steers or dairy stock? A.—Very little grain would be required. It might probably pay to feed two or three pounds. Steers should do well on such a mixture without grain.

Q.—What do you think of cross-bred animals for beefing purposes? A.—E. C. Drury, Crown Hill. Not much. If you want an animal for beef, you simply must not have any touch of dairy blood, and there is no object in crossing beef breeds. You generally get animals inferior to either breed you use. Select the breed you intend to follow and then grade your animals persistently to that breed.

Q.—Do you not think a great deal of harm is done by breeding animals too young? A.—I certainly do. I disapprove strongly of the using of immature bulls, and we should not, for beef, have our heifers come in before they are three years old.

Q.—Would you approve of taking calves from their mothers as soon as born? A.—There is a great difference of opinion on this. Many good farmers follow each plan. Personally, I prefer to leave the calf with the cow for four or five days. We think the calf gets a better start, and we have never seen any evil results.

Q.—How long would you give a beef calf new milk? A.—I would prefer to give it for three weeks or a month. The extra cost is trifling, and this brings the calf safely through a period when skim milk, unless handled very skillfully is liable to damage its digestive organs.

Q.—Have you ever used any of the preparations which are advertised to take the place of the cream in the milk? A.—Yes, a little, but I know of nothing better for this purpose than whole flax boiled, with a little wheat flour added.

Q.—Would ground wheat made into gruel answer as well? A.—I think not. Flax is very rich in fat, or oil, while wheat is not. Not only is the oil in the flax a better substitute for the cream than the starch of the wheat, but it also has a good influence in counteracting the constipating tendency of skim milk.

Q.—What would you feed young calves in the way of grain? A.—I have found a little whole oats as good as anything. They eat them readily and seem to thrive on them.

Q.—What do you think of raising calves on the cows? A.—When pasture is cheap I think it is a good plan. The cows can be wintered dry very cheaply, and the calves are certainly beter than skim milk calves.

Thos. McMillan, Huron County. I have seen skim-milk calves as good as new-milk ones. A.—That has not been our experience. With us the calves that are kept on the cow are very much better than those raised on the pail.

DAIRYING.

CO-OPERATION IN DAIRYING.

By Geo. H. Barr, O. A. C., Guelph.

Co-operation between individuals or corporations in any line of business tends to increase profits. In dairying this is especially true.

First, there must be co-operation between the dairy cow and the man who attends and milks her. Kindness on the man's part will be appreciated by the cow, and she will repay it by giving more and better milk. She will also appreciate and repay for good, wholesome food, clean water, plenty of salt, and clean, well-ventilated stables.

Dairymen especially should always remember that a cow is a mother, and it is because she is a mother that she is giving milk, and the more kindly, careful treatment she receives, the more likely she is to give a greater flow of milk.

The best method of disposing of the milk is, generally speaking, sending it to either a cheese factory or a creamery. Therefore, to get the most out of it, there must be co-operation between the patron and the factory men.

Too many of our factories and creameries are not properly equipped. Why? Because there is lack of co-operation; all are not working together, and the result is too many factories. The greater the number of factories, the greater the expense. The greater the expense, the less the profits. Milk routes crossing each other; if a patron's milk is returned they will go to the other factory, and the result is a poor quality of milk, a large average, and a poor quality of finished product.

Poor curing rooms are causing the loss of thousands of dollars to the patrons of cheese factories. The factory men and patrons must co-operate and improve the equipment of our factories, if we are going to maintain our reputation.

Factory men should accept nothing but clean, sweet, good-flavored milk, and the patrons should see that the whey tanks and equipments of the factory are kept clean and tidy. Makers have no business to demand clean, sweet milk, if their whey tanks are only cleaned out about once a year. This is not co-operation.

But when the factory and surroundings are kept neat and clean, then the patrons should stand by their cheesemaker, when he refuses to accept unclean and tainted milk. for two or three careless persons may injure the output of a whole day, causing a loss of five or six dollars in one vat of milk.

Co-operation between the maker and patrons in rejecting bad milk at the weighing stand will do more to improve the quality of our cheese than anything else.

Then, we want co-operation between the maker, the patron, and the instructor. An instructor can do very little unless he has the hearty assistance of the cheese or butter maker, and by visiting the patrons, much valuable information may be given and received regarding the great question of taking care of milk and cream properly. Our instructors will do considerable work of this nature this season, and I trust they will be well received by the patrons, as I know from experience great good can be done in this way. Many patrons are doing all they can to take care of the milk, but are doing it in a wrong way, or place. No one man knows it all, and it is only by getting all the information possible can we attain to any degree of perfection. Co-operation will assist us greatly.

DISCUSSION.

Q.—Why is there so much grease on the whey tank? A.—G. H. Barr, Guelph. There is always a small percentage of fat lost in manufacturing, which goes off in the whey. The loss is always greater from gassy, tainted or overripe milk.

Q.—Do you think it is right to add 2 per cent. to Babcock reading? A.—It will pay to give each patron almost exactly the amount they would realize from the actual amount of cheese made.

Q.—Will a young heifer give as much as an old cow? A.—There is not much difference.

Q.—How should a can be cleaned? A.—Washed with a brush and warm water, then scalded and set in the sun.

Q.—Should a cheesemaker be obliged to take out a diploma? A.—We should have some standard or examination which makers would have to pass before they be allowed to manage a factory.

Q.—What do you think of those machines used for pumping air into the milk? A.—If pure air is pumped into it, they are all right. Keeping them clean is the main point.

Q.—Do you find any taint in milk from silage? A.—L. A. Zufelt, Chesterville. No.

Q.—Do you think it possible to feed turnips without tainting the milk? A.—No.

Q.—How much milk should a first-class cow average for ten months? A.—From 7,000 to 10,000 pounds.

Q.—Should cows receive a first-class food to produce milk of a good quality? A.—Certainly, as the character of the food determines to a greater or less extent the character of the milk, especially its flavor.

Q.—Can the percentage of butter fat be increased by feeding? A.—No.

Q.—Is it possible to get milk from cows entirely free from bacteria? A.—No, but we can, by observing strict cleanliness, lessen the number which may be introduced at the time of milking.

Q.—How long will it take to ripen cream at a temperature of 60 degrees? A.—It all depends on the number of lactic acid germs present in the cream. Under ordinary conditions it would take from twenty-four to thirty-six hours.

Q.—Would it be of any benefit to add a starter if cream was ripe? A.—No.

Q.—Under which system of separation can you get most butter? A.—The centrifugal system will produce on an average from ten to fifteen per cent. more than either the shallow or deep-setting pails.

Q.—Why does it take longer to churn one time than another, even when done at the same temperature? A.—The length of time depends on the richness of the cream, degree of ripeness and the amount in the churn, also the speed at which the churn is run. As a rule, the richer the cream, the less time it will take for churning, and sweet cream requires a longer time for churning than cream properly ripened. If the churn is filled over two-thirds full, it will take much longer than if a less amount was put in. The churning is done by concussion, so that if the churn is revolved too rapidly the cream remains in the ends of the churn, and when revolved too slowly the cream just runs down the sides. In either case no concussion is produced, and hence there is no progress in the churning.

Q.—Do you really believe that the lower the churning temperature the better the butter? A.—Yes. The higher the temperature, the more casein is incorporated in the butter, consequently the sooner it will go off flavor and become rancid. Churn your cream at as low a temperature as possible, providing it does not take you too long.

Q.—How long? A.—Not over one hour.

Q.—What is the cause of bitter milk? A.—Bitterness in milk is produced mainly from two sources, viz., foods and the growth of micro-organisms. The micro-organisms produce the worst results and most to be feared. Prof. Harrison, of Guelph, has discovered that these germs are found on certain species of maple trees, and undoubtedly have been introduced into the milk by keeping the cows under these trees. When once these organisms get a foothold, extraordinary measures must be taken to destroy them. Every utensil must be thoroughly sterilized, and stables and surroundings disinfected.

PREVENTION OF MILK FEVER IN COWS.

By Dr. Henry G. Reed, Georgetown.

Milk fever is a disease peculiar to cows at the time of calving, and especially to those of the improved milch breeds. The premonitory symptoms are slight, the attack sudden, and the course of the disease rapid. Heavy milking cows that are in good condition are the most likely to become affected, although animals in moderate, or even poor condition, sometimes develop the disease, provided they are heavy milkers and have been well fed for a few weeks before coming in. It is one of the most fatal diseases that farm stock suffer from, and a large proportion of the patients will die, even under the most skilful veterinary treatment. Consequently, in my opinion, no farmer is justified in attempting treatment.

But, although curative treatment is often unsatisfactory, too much stress cannot be laid on preventive measures, and the careful farmer need seldom, or ever, have milk fever in his herd.

Cows such as described above should have no stimulating food, such as pea meal or corn meal, nor indeed any kind of meal, for at least two weeks before calving. Feed the cows on roots, clover hay, silage, or any succulent, easily-digested food. It is of the utmost importance to keep the bowels relaxed, and boiled flaxseed or linseed meal helps to answer this purpose. If the animal is in a condition favorable to the development of the disease, it is also a good practice to give once a week for one or two weeks before coming in, a good dose of purgative medicine, such as two pounds of Epsom salts. Also give another dose as soon as the cow has calved. Give no stimulating food for at least a week after calving. Keep the animal free from cold draughts, as a chill always predisposes to an attack. It is also much safer not to allow the cow to drink cold water for a few days. Many farmers think that cows are safe from an attack if they are running at pasture. This is a mistake, as abundant, juicy pasture is unsafe, and the animal should be put on poorer pasture for two or three weeks before calving.

DISCUSSION.

Q.—Is it safe to drench a cow that is down with milk fever? A.—Dr. Henry G. Reed, Georgetown. No, it is very dangerous unless you pass a tube into the stomach and pour the fluid through the tube. The patient cannot swallow, because the throat is paralyzed, and the fluid is just as likely to run into the lungs as into the stomach.

Q.—Would you give injections in treating milk fever? A.—Yes. Always.

Q.—Is it a good practice to mix a little ginger with the salts for purging cattle? A.—Yes.

Q.—Have you ever given carbolic acid as a preventive of milk fever? A.—No. I know it has been recommended, but I have never tried it, and I doubt its utility.

Q.—Do you think milk fever is hereditary? A.—No, except in so far as the tendency to heavy milking might be inherited, which predisposes to milk fever.

Q.—Will milking a cow before coming in prevent an attack of milk fever? A.—No.

Q.—Is there anything a farmer can do to prevent retention of the afterbirth in cows? A.—Nothing further than to keep the animals in good, healthy condition, and the bowels relaxed.

Q.—Is ensilage likely to produce bloating in cattle? A.—Not if carefully used.

Q.—While in winter quarters, how often per day should a dairy cow be fed? A.—Twice per day is ample, provided she is given all she will eat each time.

A PRACTICAL TALK ON DAIRY COWS.

By R. S. Stevenson, Ancaster.

The greatest difficulty that confronts the farmers of Ontario who are making dairying a leading branch of their business is the building up of a good herd of profitable dairy cows.

It has been estimated, and, I believe, correctly so, that a large percentage of the cows kept by farmers very little more than pay for their keep. As a matter of fact, there are very few dairymen who keep any considerable number of cows, but what have some boarders in their stables. The sooner these cows are detected and turned into beef, the better for their owners, as the only profit that will ever be got out of such cows is when they give up their lives on the butcher's block. That, I may add, is the only right way to get rid of them. Do not sell them to your neighbors for dairy cows, as that is only continuing the nuisance in the community.

The question now arises: "How is the average farmer to procure a herd of good paying cows?" The answer is: "By breeding them himself, and by the continued selection of those that come up to a certain standard of production." There is no reason why every farmer cannot greatly improve his herd, but it can only be done by judicious breeding. No one need expect to build up a dairy herd who will persist in breeding from a beef sire. Whoever heard of anyone who was breeding roadster horses using a Clydesdale or Shire stallion? But you can find plenty of men who are using a beef bull and expecting to get good dairy cows from his offspring. Now, every farmer has some pretty good cows among his herd, and with these for a foundation, there is nothing to prevent him from breeding up a herd of good cows, but he must use judgment in the selection of the bull he uses with them. Without a sire of the proper dairy type, improvement is out of the question. Every man should choose a breed, and a certain type of that breed, and then stick to it. Never cross breed. When you are done with one bull, procure another of the same breed and the same type, and, of course, always pure bred.

A few points in selecting a bull may not be out of place here. Make it your business to find out what kind of a dam the bull had, whether she was a good cow at the pail and churn. Had she a perfect udder, with well-placed and good-sized teats? This is one of the most important points, as the bull has a great deal to do with the shape and style of the udders of his daughters, and if he came from a family of cows who had a tendency to go wrong in the udder, his daughters will, in a great many cases, have the same defect. A bull that has breeding of a high order, based on performance, is certain to get good calves, provided that as an individual he is satisfactory.

If dairymen generally would only realize the truth of the adage that "the bull is

half of the herd," and how thoroughly, in the course of years, the blood and characteristics of the bull impregnate and dominate any herd where he is used, there would be very much more care used in the selection of our bulls.

DISCUSSION.

Q.—What percentage of pure putter fat should good butter contain? A.—R. S. Stevenson, Ancaster. About 85 per cent. pure butter fat suits the British market best.

Q.—Can milk be kept from Saturday night until Monday in good condition for cheesemaking? A.—By placing the milk cans in ice water and cooling the milk rapidly the milk can be kept in first-class condition.

Q.—Why is it that adding hot water to the cream in churning is a bad practice? A.—It aggravates the conditions, as the cream is already too thin.

Q.—What is the simplest way to aerate milk? A.—By inverting a perforated milk pan, that has a handle soldered on the bottom and pushing it to the bottom of the milk can.

Q.—Is it not a fact that dirty milk will make a greasy curd? A.—Yes, it very often does.

Q.—Will a milk poor in fat make as much cheese as rich milk? A.—No, the fat is what gives value to the milk.

Q.—What standard of milk is best for making cheese? A.—From 3.5 to 4 per cent. fat.

Q.—Do you prefer to feed wet or dry feed to cows? A.—There is no advantage in wetting the feed.

Q.—Does it pay to cut clover hay before feeding? A.—Not as a rule, sometimes in order to mix inferior fodder with it, it may, but not otherwise.

Q.—Would you advise feeding grain to dry cows? A.—Yes. Cows that are soon coming in again should be liberally fed, as they should be in good condition when they calve.

Q.—Can you increase the fat of a cow's milk by feeding? A.—Not for any length of time as the richness of the milk is controlled by the individuality of the cow.

Q.—What can we feed our calves to take the place of milk? A.—Mix a small quantity (about a tablespoonful) of boiled flaxseed with porridge, made from oatmeal, add to this three to four quarts of hay tea, and you will find that your calves can be fairly well raised on this.

Q.—Is the small feeder among cows necessarily the most profitable? A.—No, the large feeder is the more profitable, as a rule, as one cow will do the work of two, and you save the feed, support and care of one cow.

Q.—Will a cow give a richer milk by milking three times a day? A.—For a short time only, and then she will revert to her normal standard.

Q.—Will a cow become worn out at seven or eight years of age if she has been heavily fed on grain all her life? A.—No. Cows are improved by liberal feeding.

Q.—Does it pay to feed grain to cows on a full pasture? A.—Yes, it will pay to feed a small grain ration, even on a full pasture.

Q.—What is the best treatment for a cow that has a caked udder? A.—First of all, give her one and one-half pounds of Epsom salts, then hand rub and bathe the udder with hot soapsuds.

Q.—Are pure-bred cattle profitable for dairy purposes ? A.—G. H. Hutton, Easton's Corners. Yes and no. The pure-bred dairy breeds are profitable, but good grades of the dairy breeds are just as profitable, and much cheaper.

Q.—What about the dual purpose cow ? A.—Such a cow is all right, provided we can get her, but as yet we have not such breeds and either one or the other of her characteristics is sure to be bred out, either dairy or beef.

Q.—Does not the Ayrshire-Holstein cross make a good cross for the dairy. A.—It depends on how you cross. If you take into your herd of Ayrshire grades a Holstein sire, then I say "No," as the cross is too violent, but reverse this cross and the results would be better. But I may add that whatever line of breeding you follow, Ayrshire, Jersey, Holstein, etc., stay by it ; do not change your sire from one breed to another.

Q.—What breed of cattle do you keep ? A.—That is a personal question, and I will give a personal answer. I keep grade Holsteins, using a pure-bred sire.

Q.—What standard should a dairy cow have ? A.—I think individual records should be kept and any cow not giving more than 4000 lbs. of milk in cheese season, is a positive loss ; 6000 lbs. is a good standard for the average cow.

Q.—Will a cow eat straw if she is getting corn silage ? A.—Yes ; she seems to have a particular liking for chopped straw in conjunction with the silage.

A TALK ON DAIRYING.

By Erland Lee, Stoney Creek.

The dairy interest in our Province is become the most important department in our agricultural development. A few years ago we were only supplying enough butter for our home market, where we had no foreign competitor, but when we began to ship butter to England, we found that the farm dairy butter was not a good enough article to compete successfully with the butter there. This led to the starting of creameries, and even now we find that we are no more than holding our own with our competitors from Australia, South America, Denmark and even Siberia.

There is an enormous market in the old country for dairy products, and we have only a small share of it as yet. Our home market is increasing very rapidly, but not as rapidly as the dairy industry increases. Of course it is very necessary that the industry should increase, for there is no department in our farm industry that is better adapted to the keeping up, and increasing of, the productiveness of the farm than this one.

The foot-hold that we have in England is enough to give us a greater market in the future, and give it to us over all competitors, but in order to increase the demand for our dairy produce, it is necessary that we put only the very best article on the market. Our creameries must be models of cleanliness and convenience ; the manufacturers must be competent to perform their duties. These are requisites, but in addition, we must have patrons, who know their very great responsibilites, and who are willing to do their share in gaining and holding the butter market.

Just a few words here as to the duties of the patrons. It lies with them to see that the cows are kept healthy, given plenty of clean drinking water, that the stables are light and well-aired, that the milk pans are properly washed,—not with a dish cloth, nor in dish water, but in clean, warm water, with a coarse brush (used for that purpose only) wrinsed with fresh water and finally scalded with boiling water, and allowed to drain of their own accord. Always use tin pails of the best make. The cow's udders, if not perfectly clean, should be washed or thoroughly brushed down.

The milk should be removed from the stable as soon as milked, and strained through from four to eight thicknesses of cheese cloth and a wire strainer. As heat induces milk to sour, it is necessary to cool it immediately by running it over a cooler, or by placing the cans in cold or ice water and stirring the milk until quite cool. Always cool the new milk before adding it to the older milk. The cans should be placed in a cool, airy place, not under trees, as dirt and insects may drop in.

The faults most commonly found in our butter are grassy, turnipy and stable flavors. No butter-maker, no matter how well skilled, can make good butter out of inferior milk, so that it is the patron who is the blame for the inferior butter, and it is to him—although not to him alone—that we must look for the production of a better quality of butter, which will win a place, and hold the place when won. Patrons should not rest content with the fact that their milk is never sent home as unfit, but should not be satisfied unless they are sure that it is in first-class condition. They should care for their herds intelligently, and handle the milk in a way that will show that they are determined to do their part in building up for Canada a great and satisfactory trade in the butter market, both at home and abroad.

If proper attention is paid to these details, it will not only increase the productiveness of the farm, but will return a margin of profit in proportion to the intelligence and energy used.

DISCUSSION.

Q.—What temperature do you consider the best for curing cheese? A.—N. G. Somerville, Brockville. A temperature not higher than sixty degrees.

Q.—Should milk be aerated? A.—Yes; great care should be taken that the milk is placed where the air is pure.

Q.—What do you think of the condition of the whey tanks at the majority of factories? A.—I think that the whey tanks are not kept in as good condition as they should be. I think that whey tanks should be thoroughly cleaned out at least once a week. The majority of whey tanks at factories are simply a breeding place for all sorts of bacteria, and the whey thus infected is returned to the farmer in the same can that we expect him to send us first-class milk in on the following morning. I do not think that we can emphasize too strongly the necessity of paying more attention to whey tanks at cheese factories. The cheese-maker should be on the weigh stand every morning himself looking as tidy as possible, for if the maker does not have his factory utensils and surroundings in splendid condition, how can he consistently insist upon his patrons sending first-class milk?

The cheese-maker should make a careful selection of all milk brought to him to manufacture into cheese, and should return any milk that is not first-class, but when a maker returns a can of milk he should always send word to the owner why the milk has been returned and give instructions how to remedy the defect.

All cheese-makers should be supplied with a curd test, and when a can of milk is returned a sample should be taken for a curd test, and in this way the maker is enabled to find out the exact cause of the trouble. All makers should try to impress upon their patrons the great loss sustained by delivering grassy or tainted milk. A good idea would be for makers to call their patrons together once a month and talk over the best methods of overcoming the difficulties with which the patrons have to contend.

Q.—Will it pay to buy a cream separator? A.—John S. Pearce, London. Yes, if it is a good one and is intelligently handled.

Q.—How much butter can be made extra per cow with a hand separator? A.—From ten to twenty per cent. more, according to circumstances and conditions.

Q.—For how small a herd would it pay to procure a hand separator? A.—For from five to eight cows. Many people buy one who have only four or five cows.

Q.—How can we know our best cows? A.—By weighing the milk and testing same with a Babcock tester.

Q.—Will too much ensilage flavor the milk or butter? A.—Yes, if fed very heavily and especially if not too sweet, or the corn a little too green when put into the silo.

Q.—Will the cream keep longer from the separator than from pans? A.—Yes, if

cooled down and well mixed and stirred. Passing through the separator aerates the cream.

Q.—How long will a cream separator last? A.—From ten to fifteen years if well cared for. It may need a few small repairs, but I have known of separators that were used every day for six years without fifty cents worth of repairs.

Q.—Does it hurt to wash dairy utensils in hot water? A.—Yes; they should be washed in good warm water, and then scalded in boiling water and put in the sun or airy place to dry.

Q.—Would you wash the parts of the separator at once? A.—Yes, but where this is impossible cover them with water so that the milk and cream will not dry on.

Q.—What is the proper temperature at which to churn cream? A.—Churn as low as possible; use a thermometer and churn at fifty if you can.

THE DAIRY FEMALE FROM BIRTH TO MATURITY.

By D. Drummond, Ottawa.

At farmers' meetings throughout the Dominion we find a great many dairymen who ask the question, "Why is it we cannot keep up the size and quality of our dairy cows so that they may equal their forerunners that were imported?"

When these animals came to our country they found new and strange surroundings and associations; they thrived and yielded profit to the men who understood them and surrounded them with conditions similar to those which served to develop them and place them in the high position they now occupy. In the hands of indifferent farmers and breeders they have deteriorated, because of the violation of that law of animal husbandry that demands the continuance of the conditions which caused the improvement. If they do not have these conditions they will quickly revert to the plane from which they started.

Knowing that it has been by selection, feeding, education, and breeding, that our dairy animals have been brought to their present point of excellence, we must keep in mind that it is only by the continuance of these methods and by constant vigilance and painstaking effort that we can hope to make any improvement.

There are three periods in a young dairy female's life to which special attention should be paid, viz., the calf period, period of pregnancy, and first period of lactation. The dairyman who attends to these points properly will be sure to care for the animals well during the remainder of their lives.

Calf Period. There has been so much said and written lately about feeding dairy calves that we will summarize in a few words. Feed regularly as to time and quantity, of warm, sweet skim milk, in clean vessels. Give access to dry meal composed of ground oats and bran, green clover, grass or clover hay, fresh, clean water, shade in summer and shelter from rain and cold, also dry bedding. Kind treatment will usually insure good calves, if they have been properly bred.

Period of Pregnancy. This is the period most neglected by our farmers. The heifers are allowed to hustle for themselves during the fall months; often exposed to storms of rain and sleet, and during the following winter are fed largely on foods such as straw and cornstalks, which do not contain enough digestible nutrients to produce the proper growth of the mother, let alone the development of the foetus. All farmers have, or can have, at their disposal some of the best feeds procurable for their heifers during this period, such as roots, clover hay and ensilage. If that is not enough a small ration of grain is very beneficial during the last three months. Even so small a

quantity as one or two pounds daily will help wonderfully. Oat chops and bran are preferable. Our experience has been that at no time during the life of a dairy cow is a small grain ration more profitable.

There is also the education to be attended to. It is probably superfluous to mention the necessity of kind and gentle treatment, but it is, nevertheless, true that at this period in all our animals, they should have the kindest possible attention, the effect of which is not shown only on themselves, but also on their offspring. The man who drives his cows with dogs, and uses a club to make them obey him is generally troubled with kicking cows. Therefore, treat them kindly. Handle the udder and teats so as to develop the udder. Do this at least twice a week for six weeks before calving. The heifer will then be quiet and gentle, and will not be afraid when her udder is touched after she has calved. You will also find the udder developed so that it will almost resemble a cow's udder.

It is recognized that the dairy cow is very largely a creature of habit. The length of the period of lactation is generally due to heredity and the education of the individual to that end. But it is not only length of period we require, but also a large flow during that period. To accomplish that we must see that the animals have an abundant supply of nutritious, succulent food during the whole period.

As the majority of our dairy heifers drop their first calves during the months of April and May (which is probably as good a time as any for a heifer to drop her first calf) she is then in good shape to go out on the flush of the grass, which will cause her to milk all that she is capable of, and will also help in the development of the udder. During this period of plenty of feed the heifer, following an instinct given her by nature, lays up as much as she can possibly store of fat or energy to carry her over a period of scarcity. The aim of the farmer should be to supplement the grass in some way, so that she will not draw upon her store of energy. If the farmer fails to give some food for this purpose she will use up this energy or fat and will then diminish in her flow of milk. It is then too late to get the best results, because her first object will be to replenish her store before giving you any return in milk. By that time the flow will have diminished so much that it will be impossible to increase it to any large extent. Therefore, the only method to follow to develop the heifer is to see to it that she has at all times a full supply of suitable food to produce a large flow of milk for as long a period as possible, say about ten months.

We wish to lay particular stress on the care of the dairy female during the first period of lactation, because if she does not acquire the habit of a long, continuous flow during her first or second seasons she will rarely acquire it later in life. We should remember that we are not expending our time and feed for one year only, but we are developing a female that we expect shall give us a profitable return for at least ten years.

Breed right ; select carefully ; feed well ; and educate for our special purpose, and by so doing our animals will respond and give us good returns for our work. It is only by continuing in these lines that we can hope for any improvement in our dairy cows. Do not expect first-class returns if you only give third or fourth class conditions.

DISCUSSION.

Q.—How much milk would you feed a calf per day ? A.—Andrew Elliott, Galt. From one and a half to two gallons per day.

Q.—How often would you feed ? A.—Three times a day.

Q.—Would you feed turnips whole or pulped ? A.—I like the pulped turnips best.

Q.—Why ? A.—I can regulate the quantity better, and, if I wish, can mix chop and meal.

Q.—Is there any danger in feeding chopped oats to a calf? A.—No; feed a small quantity at first.

Q.—Would you mix chop with silage? A.—Yes; it answers very well.

Q.—Is barley chop good for calves? A.—No; oats are better.

Q.—Are whole oats good for calves? A.—Yes; give a few at first.

Q.—What would you feed to calves with skim milk, to make it more nutritious? A.—Dr. Henry G. Reed, Georgetown. Wheat bran and ground oats, which will be improved by adding a little flax seed meal.

Q.—Would you raise a heifer's calf for breeding purposes for a dairy? A.—As a rule I do not think it advisable, but no doubt there are exceptions

Q.—What would you feed a calf in summer beside skim milk? A.—T. G. Raynor, Rosehall. I would either give it access to good pasture, or give it good clover hay, with either whole oats and bran, or chopped oats and bran, with a little oil meal mixed in the ration. I would also limit the amount of skim milk and endeavor to feed it in clean pails.

Q.—What are the symptoms of black quarters? A.—Lameness at first, usually in the hind quarters. The hand passed over the skin will cause a crackling sound in the affected part. They soon droop and die, and a post-mortem reveals a collection of blood of dark color in that quarter.

Q.—What do you consider the best and most convenient foods to use with skim milk when feeding calves? A.—D. Drummond, Ottawa. Crushed oats, bran or middlings, or a mixture of all three, and feed dry. Do not mix with the milk.

Q.—How much skim milk would you feed a calf per day? A.—From 14 to 20 lbs., according to age and size of calf. Feed regularly, both as to quantity and time, and also feed out of clean pails.

Q.—Is whey good for calves? A.—It may be used when sweet, but not when sour. When feeding whey to either calves or hogs peas, or oil meal should form a portion of the grain ration.

Q.—Is a calf better kept in or allowed to run outside in the pasture? A.—J. S. Pearce, London. If the flies are bad or the pasture without shade, would prefer to keep them inside until they are six weeks or two months of age, or allow them to go out at night and keep them in during the day.

Q.—How much milk should a cow give in a year? A.—A cow should give at least four to five thousand pounds in a year to be a profitable cow, and a good cow with extra care should give from six to eight thousand pounds.

Q.—What amount of money should a good cow return the owner? A.—Forty dollars to sixty dollars is a fair return; below that she would not be profitable.

Q.—What is the best time to dehorn cattle? A.—At about two years old.

Q.—Would you recommend Hungarian Millet for feeding stock or cows? A.—Yes, by all means, but be sure and cut early. If it is cured well it makes splendid feed for cows.

Q.—Do you approve of feeding skim milk to calves? A.—Yes, if fed sweet and with some pure linseed meal to take the place of the butter fat.

Q.—How much milk should a young calf get? A.—About ten pounds per day, fed in three instalments until the animal is three weeks old and twelve to fifteen pounds after three or four weeks time, but be sure to feed it warm and sweet.

Q.—What would you recommend to take the place of the butter fat taken from the milk? A.—Either flax seed or linseed meal, oil cake or Bibby's cream equivalent.

Q.—At what age would you commence feeding hay or grain? A.—Just as soon as the calf will eat it.

RELATIVE VALUE OF FOODS FOR MILK PRODUCTION.

By J. Stonehouse, Port Perry.

In these days of keen competition the up-to-date farmer and dairyman is making a study of this feed question, and I find everywhere in my travels that the most progressive and successful dairymen are giving this subject a good deal of attention. We grow quite a variety of foods upon our farms, but we know from experience that all foods do not give like results when fed to the dairy cow, and if we have made a study of this feed question we will be quite likely to have a pretty clear idea why this is so.

We have learned that the food as it enters the animal's body is divided into three great divisions, viz., protein, carbohydrates, and fat or ether extract. Protein is the constituent of the food that plays the most prominent part in the production of milk, and it is this constituent which regulates the value of any particular kind of food.

We all know that a ton of any kind of grain is much more valuable for feeding than a ton of hay or straw, and it is simply because the grain is so much richer in protein, which is used in the animal economy for the production of muscle, blood, milk, hair, hoofs, horns, etc. The other constituents of the food we have in abundance in the different foods grown on our farms, therefore we do not require to purchase these.

Some of the by-products which are found on our markets are especially valuable as dairy foods on account of the large amount of protein which they contain, notably cotton seed meal, oil meal and gluten meal, any one of which contains a larger percentage of protein than any of our common grains. Among our coarse fodders clover hay takes the lead as a producer of milk, but where lucerne (or alfalfa) can be grown, it stands preeminent on account of the very large precentage of protein it contains. It is said by some authorities that a ton of well-cured alfalfa is equal to a ton of bran, and there is no reason to doubt the statement, as the composition of the two are very similar.

Corn is the dairyman's sheet anchor on account of the large amount which can be grown per acre. An acre of corn, either field-cured or siloed, will produce more milk than can be secured from any other crop. Neither corn silage nor fodder corn, however, is a balanced ration of itself, as corn in any form is deficient in protein. That is the chief reason why so many feeders are disappointed in corn silage, as they expect it to take the place of all other foods.

Corn silage, clover hay, and some concentrate, rich in protein, such as pea meal, gluten meal or oil meal, and a few pounds of bran will form a satisfactory ration for winter feeding. Oats are also excellent feed for milk production and a mixture of oats and peas, or oats, barley and wheat ground together, make one of the most satisfactory grain combinations which we can grow on our farms. From five to eight pounds of this mixture and four pounds of bran, with thirty to forty pounds of silage, and a fair allowance of good clover hay, with what roughage they will eat, will constitute a twenty-four hour ration for the best cows of our herds.

Soiling Crops. Peas and oats are very satisfactory as a soiling crop and should be sown at intervals, of say, two weeks, so as to prolong the feeding period, if possible, until corn is sufficiently matured for soiling. Corn will not keep up the flow of milk so well as the peas and oats unless a small grain allowance is fed in connection with it, as the immature corn is very deficient in protein. Tares, or vetches, make an excellent substitute for peas, to sow with oats, and cows seem to prefer them to peas. Too much attention cannot be given to this matter of soiling cows and tiding them over the period of short pastures without a shrinkage in milk.

Better than any soiling crop is a supply of silage left over from the previous winter, and it is not only better, but it is so much more convenient and is such a saving in

time and labor. Many farmers are now building an extra silo and filling it for summer use, and those who have tried it say that it is the cheapest and most satisfactory summer feed they have ever used.

DISCUSSION.

Q.—What proportion of peas and oats should be sown for soiling? A.—J. Stonehouse, Port Perry. About 3 pecks of peas to 2 or 2½ bushels of oats per acre.

Q.—Would you sow as many vetches as you would peas? A.—No, as vetch seed is so much smaller; half a bushel would be sufficient.

Q.—At what stage would you commence to cut this crop? A.—As soon as the oats are headed out.

Q.—Would you advise keeping the cows in the stable during the summer? A.—I would advise keeping them in through the day, during the hottest weather, and turning them out at night.

Q.—Which are the best for milk production—turnips or mangels? A.—So far as quantity is concerned, I think that turnips have a slight advantage, but the flavor of turnips is so objectionable, that turnipy butter always sells at a discount.

Q.—Cannot turnips be fed so that they will not taint the milk? A.—Some say they can, but I have never yet seen it done.

Q.—How about silage tainting the milk? A.—If the corn is well matured before being put into the silo, and the cows are fed in moderation, there is no danger of taint from silage.

Q.—Is clover hay any good for feeding to hogs? A.—Yes, good clover hay is much relished by hogs and they will consume large quantities of it.

Q.—Did you ever feed hay tea to hogs? A.—No; my friend Mr. Stevenson of Ancaster recommends it for feeding to calves as a substitute for milk, but I never heard of it being fed to hogs. Mr. Stevens, of South Leeds, said that he was feeding it to twenty-five hogs in place of roots, and invited the delegates and others to visit his piggery and note the condition of his hogs, which they did, and found the hogs in a good, thrifty condition.

Q.—How much peas and oats would you feed with bran to dairy cows? A.—T. G. Raynor, Rosehall. I believe that dairy cows in full flow of milk should have eight pounds of this mixture per day, in the following proportions: 5 of bran, 2 of oats and 1 of pea meal. The quantity of bran will depend on the price per ton. When $15 and under per ton, I would feed liberally. When over $15 per ton I would feed more sparingly.

Q.—What do you think of a cross between an Ayrshire cow and a Holstein bull? A.—I do not approve of so violent a cross, and I do not believe that anything would be gained by crossing in this way. It is better to keep to the same dairy breed in building up a good dairy herd, by using the best pure-bred sires available, of the breed fancied.

Q.—What effect does a long period of milking have on the offspring? A.—By milking a dairy cow for a longer period than ten months to ten and a half months will, to some extent, weaken the offspring of such cows.

Q.—Can you give any reason why yearling heifers are barren? A.—The mouth of the womb may be closed, or the generative organs may be diseased. Too high condition is not conducive to pregnation.

Q.—Would you keep the calf of a heifer for breeding purposes? A.—Not necessarily so. I prefer calves from mature cows. I should not look for anything exceptional from a calf from a heifer.

Q.—What is a good yield for a dairy cow? A.—5,000 pounds of milk and upwards and 200 pounds of butter and up wards, per thousand lbs. weight of animal.

Q.—How much grain is it advisable to feed dairy cows? A.—Just so much as we can get a profit from, which will vary according to the period of lactation. A cow of 1,000 pounds weight, if a good one and in full flow of milk, should pay a profit on being fed 8 pounds of grain, containing a sufficient quantity of protein.

Q.—How would you feed sugar beets to dairy cows? A.—Whole.

Q.—At what age should heifers come in? A.—T. H. Mason, Straffordville. If they are strong, vigorous, well-fed animals, let them come in at two years and two or three months. We think they make better milkers than if we let them go to three years of age, as they do not acquire the beefy tendency, and when we come to count the cost of raising our cow up to three years of age, the value of the milk received the first year is an important item.

Q.—Are not milch cows the better of some exercise? A.—Andrew Elliott, Galt. If the weather is mild they are better for being allowed out for a time.

Q.—Is there such a thing as having a stable too warm? A.—Stables should not be kept too warm, and should be well ventilated.

Q.—Do you believe in having horses and cattle in the same stable? A.—Yes, if the horse stable is partitioned off.

Q.—What would you consider a fair standard of production for a dairy cow? A.—D. Drummond, Ottawa. Taking into consideration the shortness of the season that cows are usually milked, I would say that a dairy cow should give at least six times her own live weight in milk, or a quarter of her live weight in butter each year. The live weight should always be taken into consideration when establishing a standard.

Q.—How would you breed and feed for the purpose of making the stocker trade an adjunct to the dairy? A.—Breed for beef and then feed. Educate and develop the heifers that you wish to keep. That is, feed and care for the heifers the same as if they were dairy heifers.

Q.—Would you advise the use of dairy bulls as sires of stockers? A.—By no means.

CROPS TO GROW TO MAKE DAIRYING PROFITABLE.

By Henry Glendinning, Manilla.

We might enquire at what season of the year and under what natural conditions do our cows give the best results? I think there would be but one answer to this question, and that would be, "The month of June with its fresh succulent grass, the cows having thrown off their old coats of hair, the skin cleaned by the warm showers of rain and an occasional dust bath taken by pawing the earth over their backs, coupled by a plentiful supply of pure, fresh water, and the warm but even temperature of the atmosphere." These are the ideal conditions under which the best results are to be obtained. Nature has not given us June conditions the year round, therefore we should aim to keep our cows as near those conditions as possible if we expect to realize the maximum profit from them.

Let us first consider the pasture fields. Every experienced dairyman knows that there are great differences in pasture fields. The old pastures such as were common when the country was new, when the fields had to lay in grass for a number of years waiting for the stumps to rot out were among the best pastures we have ever had in this Province. Why? Because the soil was rich and in the best of condition for the

production of a crop, and the length of time they were allowed to lie in grass permitted the natural grasses such as blue grass and white clover to take possession of the land; these formed a close sward, yielding a large amount of forage which gave the cow a perfectly balanced ration, having the proper proportion of protein, carbohydrates and fat. The protein being converted into casein or curd in the milk, while the carbohydrates, together with the fat, contained in the grasses and clovers, were transformed into the other solids, such as butter fat and milk sugar.

Common Mistakes.

Pastures such as mentioned being an ideal food for the cow, we may enquire why the average pasture fields of the Province at the present time do not give such good results as those of the past? The reason is that the average farmer as a rule seeds his pasture fields with timothy and red clover and perhaps a little alsike added. If the first crop is cut for hay as is frequently the case, and perhaps a crop of red clover seed from the second cutting in the fall, the clovers being biennials have run the cycle of their existence and die. If the field is let run to pasture the second season little is left except the timothy. Timothy is one of the poorest of our grasses for the production of milk, and it only makes a fair growth in the early part of the season and again in the fall, while it is a very poor grower during the latter part of July and August.

But even with the best of grasses for pasture our fields are apt to fail in the middle of the summer, therefore the alert dairyman will have some crop to supplement his pastures. A plot of Lucerne clover to cut for soiling is excellent, or a few plots sown at different times with a mixture of oats and peas. These can be cut profitably about the time the peas begin to bloom and fed to the cows; this will carry them through until the early corn comes in.

A Paying Crop.

The hairy vetch is highly spoken of by a number of farmers who have tried it, being able to cut two or three crops from it during the season. (The writer has not grown it). One of the best and cheapest feeds for cows for supplementing the pastures that the writer has ever fed, is corn silage. The cows ate it with great relish, but there should be added to it wheat bran, as the silage lacks in the protein element. In the fall there is generally plenty of feed to supplement the pastures in the shape of corn cut green, mangels and sugar beets.

For winter feed we must try and get as near the ideal conditions we had in June as possible; see that the stables are warm and comfortable, with good ventilation, the cows' skins kept in a healthy condition by grooming, the food succulent and nutritious. For succulency to take the place of fresh grass, feed corn silage, sugar beets, and mangels. The silage should be made from corn well matured so that the majority of the grain would grow if planted, but not thoroughly ripe and dry; it is one of the best and by all odds the cheapest of our winter feeds.

However, corn silage lacks in the protein element and should be supplemented with clover hay cut when in full bloom and saved with all the leaves and blossoms attached to the stalks. Wheat bran, peas and oats, ground together make an excellent ration.

A Good Ration.

The following may be taken as a specimen ration for a cow of about 1,000 lbs. weight:—

40 lbs. silage or 15 to 20 lbs. pulped mangels or sugar beets.
10 lbs. clover hay.
4 lbs. wheat bran.
2 lbs. ground peas.

2 lbs. ground oats.

The silage and clover cut into chaff should be mixed together twenty-four hours before feeding. Well-cured pea straw makes excellent roughage for a cow. It is the best of all our straws.

If the cow is a very large animal or gives a very large flow of milk, a larger quantity of food will require to be given. The cow is a machine in the hands of the dairyman ; the more food he can get her to take and assimilate the greater will be his profit. We must bear in mind that it takes for maintenance of the animal without adding either weight to the flesh or producing milk, from 66 per cent. to 75 per cent. of the food consumed, and it is only what the cow takes and assimilates over the maintenance ration that there is any profit.

Sugar beets and mangels can be fed to take the place of silage ; they are better balanced, having more of the protein element in proportion to the whole than the silage, but they cost more to produce them.

DISCUSSION.

Q.—Would you recommend having alfalfa as part of the seeding of the ordinary pasture field ? A.—Henry Glendinning, Manilla. For the ordinary pasture field I would not.

Q.—Why? A.—The ordinary pasture field is grazed too close in the autumn, and sometimes colts, and other stock, will get out on the field after a thaw in the winter and they will nip off the crowns of the plants. Wherever this is done the plants will die.

Q.—Do you think it is good clover for a farmer to grow ? A.—I think it is a good soiling crop to cut and feed to stock in the green state.

Q.—Analysis show that there is nearly as much digestible protein, carbohydrates and fat in cured alfalfa hay as in bran made from fall wheat. Will the net results in feeding alfalfa hay be equal to that of fall bran ? A.—No.

Q.—Why ? A.—If you examine the analysis of these two foods you will find that there is only 8.1 per cent. of crude fibre in fall wheat bran, while alfalfa hay contains 25 per cent. of crude fibre. The animal, in the mastication and digestion of foods, wastes a great deal more energy in extracting the nutrients out of the coarse hay than the finer particles of bran. Jordan, in his work, "The Feeding of Animals," on page 165, gives the experiments of Zuntz in Germany, where he calculates that the work of mastication and digestion combined is 48 per cent. of the energy value of the digested material from hay, and 19.7 per cent. of that from oats. This authority does not give any experiments conducted with bran, but as oats contain more crude fiber than bran and are not in such fine particles, we may safely assume that bran will take no more energy to digest than oats.

Q.—Would that not be a good reason for grinding all our grain and cutting all our hay and straw that is fed ? A.—Yes, and the finer our hay and straw is cut and grain ground the better.

Q.—Why do dairymen get better results from feeding fresh succulent grass to their cows than from similar grass made into hay ? A.—The tissues of the grass being soft and succulent, are in a very digestible form, thus requiring very little energy to perform that operation ; while similar grass made into hay has had these tissues dried and made very fibrous. It requires a great deal of energy to masticate and digest them, as is shown by Zuntz in his experiments. This, with the extra palatibility of the fresh grass, induces the cow to consume larger quantities and will account, in a great measure, for the better results obtained from feeding fresh grass in comparison with dry hay.

POULTRY.

RAISING AND FATTENING POULTRY FOR EXPORT.

By J. W. Clark, Onondaga.

The demand for well-fattened poultry has more than doubled during the last few years, both for the local and export trade. Our farmers are just beginning to realize the necessity of raising a better class of poultry than they formerly did. Our export trade demands a bird weighing from three to five pounds, with plump, meaty breast, in order to bring best prices, and they prefer a bird with white legs and flesh. If we cater to that high-class export trade we must give them what they ask for, as they are willing to pay fancy prices.

We have three commercial breeds of poultry which answer our requirements best, namely, Rocks, Wyandottes and Orpingtons. The Buff Orpington answers the requirements of the English market best, having white legs and white flesh, which John Bull so much admires.

In selecting poultry for market purposes, it is most important to get the proper type, a good low-set, short-legged, full-breasted bird. Avoid getting a cockerel with a deep, short breast-bone, for if you select one of that type it will be very bony-looking when dressed. A good object lesson in this was given at the Winter Fair, Guelph, in the different types of dressed poultry.

There has not been enough attention paid to the proper type. Most farmers, when they go to purchase a cockerel, will pick on the largest-boned bird in the flock, regardless of type. There is too much mongrel-bred poultry on our farm ; so much so that two large exporting firms had to withdraw from the trade on account of the losses entailed on the poor class of birds sent to England. The farmers need to realize that it costs no more, and not as much, to feed a good, well-bred chicken than it does a scrub.

Feeding for Eggs in Winter.

Many people have the idea that you must have a hen house unusually warm in order to get eggs in winter time. This is a delusion, as it has been proven by the O.A.C. Poultry Department that hens kept in a shed, with the windows open all winter, laid exceptionally well and had perfect health. Hens require plenty of fresh air and should not be kept in a close, stuffy hen-coop, cleaned only once or twice a year, which is the way many farmers treat their hen houses. Is it any wonder that we hear of so many farmers losing birds when kept under such conditions ? The lice alone would drive them out in many instances.

To get eggs in winter time we must imitate nature in the spring. A hen that has not laid an egg all winter, when she gets out after the snow is gone and can take plenty of exercise, pick a little green grass and a few bugs or worms, is sure to begin at once to lay. We must try and imitate these conditions in winter. Many people feed their hens too much, thinking that by so doing they will force them. Having no exercise and sitting all day on the roosts, they soon become too fat, and a fat hen seldom lays. It is important to provide a scratching pen, or shed, where you can put eight or ten inches of chaff or straw so that your grain may be scattered into this, and so force the hens to scratch it out. In the cold weather, corn is a valuable grain to feed, as it helps to keep up the animal heat in the hen. Grain should be fed at night in sufficient quant-

ities so that there may be enough left over to keep the hens busy for two hours in the morning while they are hungry. At 9 o'clock feed a mash of oat chop, finely ground, mixed with a little bran or ground clover or clover leaves, to which a little blood meal or beef scrap might be added ; ground bones give good results. Some kind of roots should be fed at noon to supply plenty of green food. Keep plenty of grit and oyster shell always before them, as many hens die through the winter for want of grinding material to digest their food. If your hens have had sufficient fresh air and exercise, the fertility of the eggs is much better early in the season.

Breeding a Laying Strain.

A laying strain that will not sit can be bred from Rocks, Wyandottes and Orpingtons. If you will set a trap nest and watch the best layers and save their eggs for hatching, as good results will follow as in breeding a milking strain of cows. By not allowing hens to sit at all, that desire will be overcome in a year or two. It will pay you to purchase an incubator, if for no other purpose than this.

Feeding and Care of Young Chicks.

Young chicks should not be fed for thirty-six hours after being hatched, as nature provides for that length of time. Hundreds of chicks are stunted and killed by feeding before they are strong enough to digest the food. One of the worst troubles with young chicks is diarrhoea, caused by allowing them to drink too much water ; feeding too soft and sloppy food; subjecting them to too much heat or cold ; and leaving them in filthy quarters. A little oat meal mixed with milk, not too wet, makes a splendid feed for a few days and a few hard-boiled eggs, chopped fine, should be fed every day for a while. A good mixture is composed of one-half dozen onions and one-half dozen hard-boiled eggs, chopped fine, and mixed with rolled oats or dried bread. Provide some fine grit where the chicks can pick it, and after ten days provide chaff or chip dirt, where small seeds can be scattered to induce the little fellows to take exercise, which will greatly assist in their growth. Pure water should be kept constantly before them in the hot weather. After the chicks are three or four weeks old, coarser feed may be given. A mash composed of finely ground oats, with the hulls removed, bran or corn chop mixed with skim milk and one pound of blood meal to fifteen pounds of dry meal, furnishes the animal food to force growth. At four or five months of age they should weigh between four and five pounds, and if properly fattened should be sold at that weight. Always kill by breaking the neck, and dry pluck.

DISCUSSION.

Q.—What is the best class of poultry to raise ? A.—J. W. Clark, Onondaga. Barred Rocks, White Wyandottes or Orpingtons.

Q.—Which make the best layers ? A.—The Buff Orpington has given good results at the Guelph and the Ottawa Experimental farms. You can breed a strain of layers from any breed by careful selection.

Q.—What causes chickens to tear so easily when plucked dry ? A.—That depends largely on the feed and the operator; if you are feeding corn or grains that produce excessive fat they become very oily and tear much more easily. The operator must commence plucking at once after killing and be careful to pull the feathers out straight if likely to tear.

Q.—How many kinds of lice are there on fowl ? A.—Three : the mite, the large red louse and the white louse.

Q.—What quantity of food do you give per dozen hens for laying? A.—Robt. Thompson, St. Catharines. This depends a good deal on the weather, and if hens are confined.

In the winter I would give wheat and oats, say one quart, in the morning and scattered in short straw or chaff, at noon some boiled roots and meal mixed rather stiff and at night some more grain. Be sure that the hens eat up all you give them, and if so give a little more, but if they leave any give them a little less.

Q.—How do you judge the quantity of feed? A.—By watching if the birds eat all up readily.

Q.—In building a poultry house, would you lathe and plaster it? A.—No; I prefer using paper for lining the walls inside. The building should be provided with good means of ventilation, so that it will be dry and not stuffy or close.

Q.—What kind of an incubator do you prefer? A.—There are several good makes, but do not buy one too small; you would be better to have one larger than you really need.

Q.—How do you prefer keeping eggs for winter use? A.—I prefer putting away eggs in April and May, when cheap and fresh, before the warm weather, using water glass, diluted with boiled soft water, until a fresh egg will sink. In using American water glass about one of water water glass to six of water will be found about right, but this spring I used English water glass and had to dilute one to fifteen of water and the eggs would only sink then. I have had excellent results from this. These eggs are nearly equal to fresh eggs and only experts can tell the difference.

Q.—How do you put them in the solution? A.—I take either clean butter tubs or candy pails, put the eggs in until they come nearly to the top of the liquid, then put on the cover and set in a good cellar. If the liquid should evaporate so that it gets thick and liable to crack, add a little soft water that has been boiled and this will prevent thickening. The solution is of no use for eggs the second time.

Q.—What breed of chickens do you prefer? A.—I prefer the Barred Rock. I have these, and the White Leghorn and the Brown Leghorn. I tried the latter two, thinking I would get better layers, but I found that the Rocks laid earlier in the winter and kept up better during the months of January and February, when eggs were high. I am, therefore, doing away with my Leghorns.

Q.—How old are the chickens when put in the crate? A.—F. C. Elford, Holmesville. From three to five months. Not before they weigh three or four pounds.

Q.—What do you feed in crates? A.—Principally finely ground oats; sometimes a mixture of barley and buckwheat shorts or bran with the oats. Use sour milk to mix with.

Q.—How long do you generally feed in the crates? A.—Three or four weeks; feed twice a day.

Q.—What breed do you like best for fattening? A.—We have fed many different breeds, and, though there were good feeders in all, the Barred Rocks and the White Wyandottes gave as good results as any.

Q.—What is the size of the crate? A.—Six feet long, twenty inches high and sixteen inches thick.

A DESIRABLE POULTRY HOUSE.

By G. R. Cottrelle, Milton.

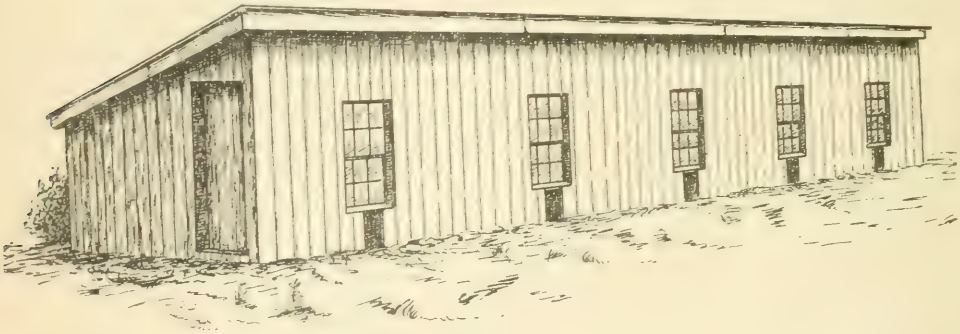
Considerable has been written in the poultry papers, and elsewhere, about building poultry houses, and in almost every case the plan has been from a fancier's standpoint. There is a great difference between the poultry house built by the fancier and the one

built by the farmer, for the fancier takes several things into consideration that the farmer does not.

In the first place the fancier wants a building to show his birds off to the best advantage, and to do so he must have a passage in his building. Then, again, it has been advocated to feed from the passage, and also to have nests arranged so as to be able to gather the eggs from the passage, and sometimes to have the roosts on the top of the nests. All these things cause the building to be more difficult to clean. A farmer must have a building he can clean quickly. Everything in his hen house should be so arranged that it can be lifted out and cleaned. The passage is simply extra air space to heat, extra floor space of no use, and an extra partition as a harbor for vermin.

It has also been advocated to place the windows in the building horizontally, when the same size of window placed in a perpendicular position would make the building lighter and would also be drier. The less space there is from the top of the window to the ceiling and from the bottom of the window to the floor the greater opportunity the sun has to strike all the inside of the building, thereby keeping it drier.

The plan of this house is an ideal, farmer's poultry house. It is probably longer than many would care to build, and not as long as many would want, but it can be built any length to suit the owner.



A desirable poultry house.

The building, as shown in cut No. 1, is 50 feet long, 12 feet wide, 9 feet high in front and 4 1-2 feet at the back, and stands facing the south. A building 24 feet square would give the same amount of floor space, and give a great deal more sun, but it would not be nearly so convenient. In a square house, two windows can be placed in the south and two in the west, thereby getting the south and west sun into all the pens, which cannot be done with a long, narrow building.

The lumber used was cull hemlock lumber of good quality, but it was all sizes. It was purchased at $12.00 per thousand. The best was selected, dressed and jointed for doors and the inside, and the next best for outside and the balance for sheeting. For sills and plates, rafters and studding, 3x4 scantling was used. The rafters and studding were placed four feet apart.

There is a large door at each end, wide enough to admit a wheelbarrow. The building is divided into five pens, 10x12 each, with doors all opposite on the south side, and hung on hinges that will swing either way. The doors will always stay closed without a fastener, and one can go through with a wheelbarrow from end to end to clean out the house, etc., the doors opening and closing automatically behind you.

Two feet of the bottom of the door is wood, and the remainder is wire. The partitions are wire, with the exception of two feet of lumber at the bottom and two and a half feet at the back.

The roosts run along the back of the building, underneath which is a drop-board 2½ feet wide and about two feet from the floor. The drop-board is hinged at the back, so that when the roosts are lifted out, it will swing back.

In the building referred to there is no floor. Whether or not there is a floor will depend on local conditions. On some soils it is impossible to keep a ground floor dry, but in my building it works splendidly.

The building has felt paper on both sides of the studding, is boarded up and down on the outside, and horizontally on the inside, with planed, jointed lumber.

The windows are two-sash, one above the other; six lights in each sash, size 8x10. Each pen has a window in it.

Cost of the Building.

Outside—Front, 50x9	450	Nails	2.00
Back, 50x4½	225	Scantling, 580 feet at $12 per 1,000	6.96
Ends, 12	144	Wire, 36 feet of 3 ft. wire, 12 yds. at 6 cents	72
Total	819	Hinges, double swing, 4 pair, at 35 cents pair	1.40
Sheeting—50x13½	675	Hinges, 2 pair strap, for doors	20
Inside	819	Hinges, 5 pair strap for drop-boards	50
Partitions and drop-boards	200	Hooks, four	25
Total feet	2,513	Paper felt, 4 rolls, at 60 cents	2.40
2,513 feet, at $12 per 1,000	$30.15	Labor, 12 days, at $1.50	18.00
Dressing lumber for inside	3.00		
Sashes, 5 sets, at 60 cents	3.00		
Glass, 60 lights, at 5 cents	3.00		
Shingles, 7 sq., at $1.85 per sq.	12.95	Total cost	$84.53

THE EGG—THROUGH THE INCUBATOR TO THE HOME OR FOREIGN MARKET.

By G. H. Hutton, B.S.A., Easton's Corners.

No branch of farm operations is so universally regarded as an expensive necessity than the keeping of poultry. In most instances the opinion would change if care were given, and the poultry yard would be elevated to the rank of a paying investment. There is no dissenting voice when the dairyman asserts that to realize a safe margin of profit from the dairy, careful feeding and attention to the wants of the cattle is requisite. On the other hand, the average man makes but little outlay in either care or capital in respect to his poultry, and is surprised to find that he receives only a proportionate return. The beginner will be confronted by difficulties, and will be taught lessons by expensive experience. But that there is a liberal profit in the business awaiting those who study its various phases is beyond question.

We have long been producing eggs for market, but there is one feature of the poultry business of recent introduction which is growing with rapid strides, and bearing all the marks of permanency, presenting opportunities for money-making of which few farmers have as yet availed themselves. The demand in the home cities for well-fatted fowl has been far from supplied, and behind that we have the yawning gulf of the chicken appetite of the million-mouthed British consumer to which to cater. The white-breast cuts are coming more and more into favor in the high-class restaurants, and poultry sent across the sea has this year sold for from 14 to 16 cents per pound. Having then such unlimited markets at home and abroad, with high prices ruling, our only concern need be to study the requirements of the market and to furnish the product it demands. The profit is assured.

In undertaking to cater to this market, we must exercise care in the choice of breeds, knowing that the consumer has cultivated peculiarities in his appetite which refuse dark legs or dark flesh in fowl. While it may be said with considerable truth, that success depends upon preference, to a degree, yet none should allow preference to be an absolute guide. I believe no mistake will be made if those breeding for this market would follow the "old reliable" breeds of Barred Rocks and White Wyandottes. The Buff Orpington is coming into favor, having quite sufficient strong points to warrant the popularity with which it is being received. Breeders should aim to secure uniformity. The market asks for large birds, well fatted. We therefore must choose a breed having size and a fitness in disposition for being crated for fattening. The breadth and general blockiness of the Barred Rock, together with their ease in adapting themselves to surroundings, commend them for this purpose.

Having made a selection of breed, in the problem of cheapest production, the question naturally arises, "How am I best to secure the chickens, by natural or artificial incubation?" When the farmer contemplates raising quite a number for market, I believe he will always find the incubator a valuable aid to the largest profit.

Some of the advantages of the incubator:

It is cheaper.

Requires less care and attention.

Less breakage of eggs during hatching period.

Larger percentage of chickens.

More healthy chickens, less liable to disease and vermin.

It permits of early hatches, if desired, resulting in pullets for early winter laying and cockerels for sale or exhibition.

For ordinary practice, I would not advise setting the incubator extremely early, since, no matter how well-balanced a ration you feed, you will often secure a very low percentage of chicks. The eggs may be fertile, but the outdoor exercise seems necessary to impart the greatest vigor to the germ and to insure the highest success in incubation.

Secure a reliable machine and operate it in a room not subject to rapid changes of temperature and having a solid floor. When the floor is subject to vibration it results in injury to the vitality of the eggs, which are most affected by it during the first week, while the germs are knitting. A dry, cool cellar is an ideal spot. In choosing eggs, select only those of average size, rejecting those having anything abnormal in shell, such as roughness or dark specks, etc., as such are seldom fertile. You may expect a large percentage of cockerels from early hatches and of pullets later.

I can offer no suggestions as to handling the machine, other than to carefully follow directions sent with the incubator, except perhaps to mention that by allowing the eggs to cool three or four times during the last eight or ten days to about 80 degrees strength and vigor will be added to the growing chick, which will enable it to penetrate the shell and free itself at the proper time.

Thirty-six hours after the chickens are removed to brooders, either artificial or natural, as you prefer (my preference is for the former), give a first feed of sand, followed by one of hard-boiled eggs, chopped onions and stale bread, all fined and mixed. The eggs used are the unfertile ones tested from the machine, and the baker often has left-over bread at reduced prices. Feed frequently the first week and restrict allowance of water. As soon as the chicks are sufficiently large, feed cracked wheat or wheat screenings, and later, drop to one liberal feed of wheat screenings per day, fed in the evening. Keep them dry, especially until feathers are formed, and provide plenty of ventilation.

When the birds have attained a weight of 3½ to 4 pounds it is time to crate for

fattening. This crating process for the chicken is like stall feeding the grass-fat steer, and it is the time when the biggest money is made. The crates are built of lath, on a frame 6 feet long, 18 to 20 inches square, divided into three sections, and raised to an elevation convenient for feeding. We usually place twelve birds in each crate. Oats ground fine, with buckwheat in equal parts or oats alone, mixed with skim milk, is the best ration. In the event of not being able to obtain skim milk, boiled potatoes are the best substitute. The usual time required to bring the birds to a weight of about six pounds is from three to four weeks, and the result of this method is that you have a finished article, superior in every way to the ordinary poultry offered, which easily commands the highest price paid.

Starve the chickens for about a day and a half before killing. Our best local market here is Montreal, which asks for the fowl bled in the roof of the mouth. Pluck dry immediately after sticking, leaving the coarse feathers all on. While cooling, press into shape by using a pressing board, which is best, or by pressing with the hands repeatedly while cooling, the object being that the fowl will pack well and appear to the best advantage when it arrives at its destination.

DISCUSSION.

Q.—What breed of hen would you advise for general use on the farm? A.—G. H. Hutton, Easton's Corners. The Barred Rocks or Wyandottes.

Q.—How many hens should be kept in one place? A.—According to size, from thirty-five to forty in a building 14x40.

Q.—How many cockerels to one hundred hens? A.—We have four to the hundred, and find results very satisfactory.

GENERAL.

A NEW DEPARTURE IN INSTITUTE WORK.

By T. P. Taylor, Burford.

During the fall of 1902 the Executive of the South Brant Institute, acting on a suggestion of President F. M. Lewis, undertook to hold judging contests at one of the fall fairs held in the county, the object being to get the boys interested in live stock and to make the work of the Institute more educational. For this purpose ten dollars was granted to the Women's Institute and thirty dollars was used by the Farmers' Institute at the Burford Fair in prizes for judging in different classes of live stock, viz., beef and dairy cattle, sheep and swine. In each of these classes two prizes were given, and were all taken up by the eight or ten young men who entered.

The Women's Institute gave in all fifteen dollars at the same fair as prizes for a chicken-plucking contest, and for the best collection of weeds correctly named, and collections of native woods correctly named. Both these competitions were conducted by expert judges at the fair, and the interest taken in them was such as to warrant the holding of them next year.

In order to make them more educational, we adopted the plan of holding short courses in judging during February and March; five meetings, or classes, were held on the afternoons of Feb. 27th, March 6th, 16th, 17th and 23rd, and were on the whole very well attended, mostly by young men.

The first of these was held at the home of Mr. J. E. Brethour, of Burford, which, by the way, is one of the most suitable places for holding a meeting of this kind, being near the centre of the riding, the buildings being commodious and comfortable, and Mr. Brethour, himself genial and entertaining; he also keeps a splendid herd of dairy cows, beside the well-known Oaklodge Yorkshires. The hour of meeting was 1 o'clock, and, in spite of the rain, which came on about 12 o'clock, there was an attendance of forty-one, mostly young men, some of them coming from a distance of ten miles. The classes taken up were dairy cattle and bacon hogs. Mr. Brethour had prepared a large space on the barn floor, and a two-year-old Ayrshire heifer was placed in the ring as an example of a dairy cow. Mr. D. G. Hanmer took charge of the class, and, using the animal in the ring, described very minutely the points of the typical dairy cow. After this a few minutes was allowed for questions, and then a grade cow was brought in and score cards distributed to the class. This animal was judged, or, rather, scored, according to the scale on the card, and nearly every one present took part in the exercise, which lasted about forty minutes. When all had finished the instructor went over the animal, marked the correct score, and discussed the different points, so that each person could see where he was in error. This animal scored 86¾ points in a possible 100.

Something even more practical was next done, when four grade Holstein cows were turned into the yard and the class asked to examine them and place as 1st, 2nd, 3rd. Mr. R. A. Brooks was asked to place the animals for the class, and give his reasons for the placing. His judgment was accepted by most of those present, and all then turned their attention to the bacon hog. Mr. Brethour took charge of this part of the proceedings, and turned into the ring four thoroughbred Yorkshire sows. Selecting one of them as a true type of bacon hog, he described the points necessary, and by comparing with the others in the ring, showed the difference between the right

kind and the ones which were too fat, or too thin. After a few minutes for questions, a pen of eight shoats was turned in, and the class asked to judge them for 1st, 2nd and 3rd place, this being done in much the same manner as the cows had been. Mr. A. S. Taylor was asked to place the animals, and give his reasons for so doing, after which the meeting was brought to a close.

The other meetings were held at Mr. H. Hanmer's farm at Mt. Vérnon, where sheep and beef cattle were discussed in much the same manner, Mr. Hanmer having charge of the sheep and Mr. Brethour the cattle.

At Mr. R. Shillington's farm near Harley the dairy cattle were again taken up, Mr. Geo. Clemens, of St. George, being the instructor. The attendance at this meeting was not very large, on account of the bad roads and the weather, but the fifteen who attended were well repaid for the effort of going.

At Mr. R. Greenwood's, near Brantford, the following day, Mr. Clemens and Mr. Brethour were unable to do anything, as there were so few present, the weather being again the cause.

The last meeting was held at Burford, in the Drill Hall, on March 23rd, and was conducted by Dr. J. W. Standish, V.S., of Walkerton, the topic being "Road and Heavy Horses." The attendance at this meeting was about fifty. A road mare belonging to Mr. F. M. Lewis was used as an illustration and judged according to the score cards. This occupied most of the afternoon, and was interesting as well as instructive. Mr. Abergast of Sebringville gave a short address on the care and management of the brood mare and foal, and Mr. Standish went over a heavy horse, giving the points of a true type of draft horse.

It was my privilege to attend all of these meetings, with one exception, and I believe that they were of great benefit to all who attended. As it is our intention to again offer prizes at the fall fair for judging of stock, there will no doubt be more entries, and those who do so will be in a better position to give correct judgment, after having received this instruction.

It is our intention to follow up next year along the same line, and will occupy part of our time at the regular and supplementary meetings in this way. I think a great many of our meetings might be made more interesting and profitable if the morning or afternoon meeting was held at some farm, where the stock or the silo or something practical could be discussed. Many of our Institute speakers are practical men and expert judges of stock, and could perhaps give us useful information by having an object, such as a dairy cow, or bacon hog to talk about and describe, instead of merely giving a lecture. The evening meeting could then be used for something more useful than many of them now are.

To South Brant Institute belongs the honor of starting this kind of Institute work, and I hope that others will follow next season, as I believe it is an excellent thing.

LEAKS AND LOSSES REMEDIED OR MODIFIED BY IMPROVEMENTS.

By W. M. Robson, Lindsay.

I shall endeavor briefly to describe some "Leaks and Losses" that take place on the farm, and tell of the means whereby we can stop them. From such a text or title I am tempted at this time to make a suggestion, with a word of advice. I thought such a heading as this should be comprehensive enough to form the basis of an interesting discussion for an hour or so, if we only had this almost general timidity removed, which might be to some extent by more frequent convening together, as business men

do, in large centres to discuss their interests. Is it not equally important for the farming community to discuss the ways and means of improving their business and social status in the keen competitions of business life by associations of this nature in order to keep well informed and up to date in passing events and modern improvements.

These conditions are coming just as soon as we get our modern improvements accomplished, by way of rural postal deliveries, and electric railways established, annihilating distances and increasing associations. For proper efforts and influences are indestructible and will ultimately prevail, and as has been lately demonstrated to the world, no effect or influence is lost, not even the ticking of a Marconi instrument at Glace Bay, which is sent floating in limitless space, to repeat itself at Prodhue, Cornwall, nearly three thousand miles away.

I must return to my subject by giving you a few reminiscences of past and present dairy products, "leaks and losses" remedied by modern improvements, that have taken place within the memory of most of my readers. As per example, twenty years ago I purchased quantities of butter, some of it of very undesirable make and shape, and brought to market in a variety of receptacles, the quality and color of which were equally as varied. I have, however, a very vivid recollection of one lot I bought at 9 cents per pound, in warm weather, probably July or August. It was all right in taste, for the lady who brought it was considered a good butter-maker, but in appearance, except color, it was like neglected dough that had spread beyond its bounds, for it was an unshapely mass all over the side dish that conveyed it, presenting an uninviting aspect. Even at this low price we had often to take it in against our inclination, for to our customers then, as now, we had to be obliging. But the selling of it out again was a more difficult business. This butter, and thousands of other packages, had to be practically sacrificed by the makers for want of knowledge of recent improvements in making and marketing it. If this same butter had been made up then, as it is made up now, in square moulds of one pound each, firm in texture, and neatly wrapped in waxed paper, it would have brought 50 per cent. more. This is remedying losses, which I think is largely due to Farmers' Institute meetings and dairy demonstrations.

Then there have been some leaks and losses avoided or modified in the improved market values of the hen and her products. It is interesting to know that a comparatively new method of carrying eggs to market is the individual egg crate, made in different sizes, with fillers as required. I think the twelve-dozen size will be found the most serviceable. They are a time and money-saving improvement, by giving assurance of correct count, safe delivery, avoiding loss of time and worry. Equally important to those who keep poultry is a knowledge of the most suitable breeds for the export market, which is a prominent industry that has come to stay. How to succeed in feeding for the market, and also preparing for the market, is a very important point to be remembered and closely studied, the result of which knowledge has been a substantial gain in prices.

For fear of wearying you in this department, I will change to another important product, viz., that of picking, storing and marketing the King of Fruits, the apple. In my opinion, you will decidedly make the most of this product by carefully hand-picking all apples intended for market at home or abroad. Have new barrels, placed conveniently in the orchard, and at the time of picking, carefully grade and put in the barrels, head them up in the orchard, ready for storing or marketing, the exception only being for immediate family use, cattle feeding or culls. This method will result in the least loss and the greatest gain when properly carried out. For storing I

should recommend the barrels so packed, and those not for immediate sale should be put in some convenient wind and rain proof shed, out-house, or barn, and allowed to remain there as long as they are safe from damage by frost. On the approach of frost, transfer all to frost-proof cellars till required for market, either home or abroad.

The exporting of apples ought to be the most particular and important part of the business, but, unfortunately for Canada, it has been the most abused by the wilful and reckless indifference in packing all over the greater part of the apple-packing and apple-exporting portion of Ontario, resulting in "Leaks and Losses" to a lamentable extent. These conditions are too well known to the export trade to need any further proof on my part. Suffice it to say that Government and society are undertaking to remedy such fraudulent practices, which we hope will ultimately ensure an honest package, and its equivalent price, for the export apple.

But it is the home market that the apple growers in this neighborhood are the most interested in, and I am loath to say that for want of a proper knowledge of the market's requirements, there are considerable unnecessary losses yet that could be avoided if they would only exercise ordinary judgment and care respecting the kind of receptacle the fruit is put in, the offering of the fruit in the proper season, and a proper provision against damages in transit to market. Apples should never be put in bags of any description, nor in open boxes, or old open barrels, but sent to market in the new barrels that they were put in when picked in the orchard. If you suspect any to be damaged, turn them out and repack with only good fruit, and head them up again securely.

If you wish to send in smaller quantities to market, there are bushel boxes for the purpose of the apple trade, with paper fillers that separate every apple, avoiding all danger of bruising. These boxes are very much used in exporting fruit to the Old Country, and probably will to a large extent supersede the barrels as a safe and convenient package for fruit. I venture to say that if these suggestions for marketing fruit are followed by persons that have been habitually indifferent to proper conditions, that such fruit would realize from 50 to 75 per cent. more than it would bring in dirty bags, open boxes and barrels, bruised and unsightly as the fruit often is.

Fruit is a theme I could talk on or read about for hours, but I will conclude by an appeal to you all to get the most information out of all speeches and papers at Institute meetings by a vigorous questioning, and have the whys and wherefores thoroughly explained, as it is your privilege to do.

THE ADVANTAGES OF FARMING IN ALGOMA.

By Mrs. Alma Smith, Sault Ste. Marie.

A prominent man of the day has said "What the United States was to the nineteenth century, Canada will be to the twentieth." Whether or not this prophecy will be fulfilled is to be seen, but there is one thing certain, and that is, that some parts of Canada are attracting the attention of almost all of the civilized world; these parts are our Northwest Territories and Algoma

Algoma, or New Ontario, as our vast district is called by those residing in the eastern parts of our Province, has been comparatively unknown until of late years, not because of the barrenness, bleakness or sterility, but because of some little difficulties which had to be met and overcome before her wonderful resources could be developed.

In the settling of a new country it has always been, and always will be the case, that those parts most easily developed are sought after first, consequently Algoma, with

her abundance of valuable timber, her undeveloped water powers and her wealth of minerals, was for a time passed by; but the day has dawned at last, when the rest of Ontario has awakened to the value of the riches lying right within her doors, and instead of rushing to settle with our neighbors over the line, or to the Northwest, they are turning their attention to Algoma.

Naturally, when the resources of our great district are being discussed, the question is asked, "What about Algoma as a farming country? Would you advise a man wishing to take up land for farming purposes to come to Algoma?" In answer to this question we would say, "Yes; the Algoma farmer enjoys many advantages." The first of these to be mentioned is the fertility of the soil and the abundant supply of good water, the rain-fall being plentiful, besides which the country is dotted all over with little inland lakes, creeks and rivers, and these two advantages combined make a country particularly adapted to stock raising, dairy farming and the growing of hay and roots. Another great advantage which the Algoma farmer enjoys is in having a splendid home market, there being no difficulty in selling everything he can raise at a good cash price.

The Algoma farmer has still another advantage over the eastern or western farmer—they have only one harvest a year, whereas he has two, one from his fields in summer and the other from his bush in winter. But, some say, "that means a great deal of hard work, both in the winter and in the summer." This, of course, is true, but it is always the busiest man who is happiest, as well as the most prosperous. We envy neither the Easterner or Westerner their easy winters; give us an Algoma winter, with its abundance of snow and its merry music of sleigh bells, as the farmer draws his hardwood, pine, pulp-wood or cedar to market, and brings back his sleigh full of comforts, or his pocket full of money to his family.

At a first glance it may seem that a farmer settling in Algoma is at a disadvantage in comparison to one settling in the Northwest, in that he must first clear his land: but this is only a seeming disadvantage, for in almost every case his bush land is a source of wealth, and furnishes him with a means of making money immediately, without having to wait for returns. In this way he is able to start farming in Algoma with a great deal less capital than he could otherwise do. We have known many settlers who have supported their families by the sale of their timber during the winter, at the same time clearing their land, from which, in the following summer, they have raised a crop. Again, the Algoma farmer with small capital has the advantage, inasmuch as he is not so utterly dependent on his crop of grain as the farmer in the West is, as there is still the winter harvest to depend on and that never fails.

It is said that the air of Algoma is very healthful, that the climate is better than in many parts of the Dominion, the weather neither too hot or too cold, and that the atmosphere is so invigorating that disease is uncommon, and consumption, the scourge of Eastern Ontario, is almost unknown. This is an advantage which must not be overlooked.

The farmer settling in Algoma is not at all likely to find himself surrounded by undesirable neighbors, for the chances are about nine out of ten that his next neighbor will be of either English or Scotch descent, these two nationalities largely predominating in the farming sections. Everything considered, we feel that the farmers of Algoma compare favorably with those of any other part of Canada.

The educational advantages in this section of the country are also good, as there is an abundance of good schools, and the different religious denominations are vieing with each other in the sending of good men to open up fresh fields and build new churches.

In discussing this subject we should not fail to notice the healthy recreation which nature has provided for her sons of toil in Algoma, for the forests abound in game, the lakes and rivers are alive with fish, and even remembering that the Algoma farmer takes off two harvests annually, he generally finds time for a few days' shooting and a day or two of boating and fishing.

Last but not least of the advantages of farming in Algoma is to be found in the ennobling influence the grand, rugged scenery cannot help having on the minds and characters of her sons; for it is an established fact that mankind is, to a large extent, influenced by the natural scenery of the country in which he lives, those living in mountainous countries being noted for their hardiness, bravery and love of freedom. All the tyrants in the world could not make slaves of the Swiss or Scots, and so will it be with the children of Algoma.

In conclusion we would say, do not be afraid to bring your families to Algoma, for they will become prosperous with her prosperity, healthy from living in her bracing climate, valorous from the influence of their Anglo-Saxon neighbors and her rugged scenery will draw them nearer their Creator.

FARMING IN ALGOMA.

By J. W. Newman, Sault Ste. Marie.

Upon the traveller's first visit through Southern Algoma, he is struck with the wild, rough appearance of the country. In other farming sections there are sand hills, barren tracts, great swamps, marshes and rocky wastes, but these are not so elevated that they are conspicuous at great distances, and thus the good portions are brought more before our notice.

In Algoma there are many large, rocky bluffs which are high and prominent, and the visitor, gazing from one to another in the distance, naturally forgets the fertile valleys, which are laid like hidden treasures in between. Unlike the other barren wastes mentioned, most of these bluffs contain minerals of some kind, and the future only can tell how many great armies of men will some day be employed there, in taking out these mineral products.

The immense water-power, the great shipping facilities, and the immeasurable wealth in such materials as timber, chemicals and minerals are just beginning to attract the attention of the capitalists throughout the world. These conditions are sure to make this a great manufacturing centre, and their relation to farming is bringing a great cash market to our doors.

The valleys between the bluffs are very fertile, and their capacity for growing grains, grasses, clovers and roots is not surpassed in the world. The climatic conditions are such that there is never a severe drought; the grass is wet with heavy dew every morning and is green and luxuriant until late in the autumn. In Eastern Ontario, Quebec, New York, Wisconsin and other noted dairy and stock sections the pastures at midsummer are usually burned and brown, and the farmers have to prepare for this by growing soiling crops to supplement the luxuriant pasturage of this district, and consequently the real feeding season is much shorter here than in those other localities. The abundance of springs and streams throughout this whole district afford a splendid water supply for stock.

Land in Algoma is cheaper, therefore the amount of capital invested in a good stock or dairy farm, and outfit, in southern Algoma will be from twenty to fifty per cent. less than in any of the above mentioned sections, and the same amount of workable land will have much greater capacity to produce nutritious foods, such as grass,

roots and leguminous crops, which restore nitrogen to the soil and produce sinew and flesh in the stock and casein, the genuine food quality of milk. This component part is an item for which other dairymen have to pay dearly, as they have to give out large sums annually for oil cake, cotton seed meal and artificial fertilizers, while here some of our farmers say that they dare not spread their barn-yard manure for fear that their crops would lodge and rot in the ground.

It is wonderful how long this land remains abundantly productive. We never hear of "a poor catch" in seeding down and a winter-killed clover crop is practically unknown. The average price of milk, eggs, chickens, turkeys, pork, beef, mutton, as well as vegetables and small fruits, is higher here than in any other locality, and this price will continue high, in consequence of our great mining, lumbering and manufacturing industries.

A visit to the local agricultural fair will prove to the doubtful that all these things can really be produced here in the height of perfection, and an abundant local supply of all these things is only dependent on the effort put forth.

The only weak point is the apparent lack of interest on the part of some of our farmers to consider their advantages, but certainly many others are pushing right ahead and are having their land rapidly cleared; and in the near future this district will be noted for its fine farms, its up-to-date barns and poultry houses, its dairy, beef and mutton herds, and its profitable poultry. Soon our lake vessels will bring to us cheap grain and bran directly from the granary of our Canadian West, and, by the application of skill on our part, we will turn this rough grain, and our abundant growth of grasses, into finished products of great excellence, and the position of the intelligent Algoma farmer will be :

"A heritage it seems to me,
A king might wish to hold in fee."

NECESSITY OF CULTIVATING THE SOCIAL SIDE OF LIFE ON A FARM.

By J. S. Duff, Cookstown.

Nothing adds so much lustre and pleasure to a well-regulated home as sociability, and, therefore, I may be pardoned if for a few moments I endeavor to discuss this very important matter as it effects life on a farm.

Man's surroundings have a great influence upon him, and as you move about, you can very easily distinguish between men who mix with congenial company when opportunity presents itself, and those who are altogether concentrated in self, their selfishness becoming so indelibly stamped upon their nature that they are neither sociable with the outside world nor in their own home.

The highest object in man's life should be to have a cheerful and happy home, and no class have such opportunities in this direction as the farmer, from the fact that he is constantly occupied with nature and its surroundings. As in the spring he casts the seed into the mellow soil, and later on gathers in the golden grain, he cannot do so without being daily reminded of the beauties of nature and the wonderful works of nature's God. And, returning to his house from such scenes and company, he should certainly be in a cheerful frame of mind, and in a position to entertain those who are not privileged to move and mix with the outside world as he is. Then, he should not stop at that. He should remember that it is his duty to furnish his family and those about him with reading matter and literature; and one good means to bring about good social hours is a daily newspaper. No family can afford

to be without one of our leading daily papers, and do themselves the justice they are entitled to.

Now, sociability of this nature is not of the common, flippant kind, which is the product of an empty brain, but that which is the outcome of reading, reflection, and an earnest application of our own minds to the wants and peculiarities of our environments.

Then, we farmers should be ever ready to join our young friends, whether of our own family or our neighbors, in friendly games and pastimes. Why should we grow too old to enjoy the pleasures of youth?

The adage which says, "All work and no play makes Jack a dull boy" is as true as ever before. Never before has city life loomed up in such enchanting forms as at present, and one of the great means to keep our boys on the farm and away from the temptations of city life is to give them every opportunity of being intelligent and sociable, and instilling into their minds the feeling that they are the peers of other classes in the community.

But the boys and girls cannot feel that they are the equals of all other classes if they have not had the proper home training to fit them to move about with as much ease and grace as the most cultured city chaps. Therefore, it is very important that a portion of every day should be spent in social intercourse and mind improvement, and no class has better advantages in this respect than farmers. Let every young man and woman spend an hour each day in reading and other mind improvement, and they cannot move about in any neighborhood without leaving the impress of those hours of self-culture. And as the years pass along, calling upon them to discharge the duties devolving upon every useful citizen of the country, not only will they acquit themselves with credit, but reflect the teachings and example of home and its early associations to such a degree that all through life their company will be sought after, and true sociability will be one of their most marked characteristics.

Another way to encourage sociability is "Never cry over spilled milk." I believe more bad humor is generated in this than in any other way. Try and look upon the bright side of everything. It is a very dark cloud that has not got a silver lining. Yes, more, take a real live interest in your neighbor. If he has good crops, tell him so. Tell him every opportunity that presents itself how well you think he is doing. It will encourage him, and if he is struggling, as many of us are, under difficulties, whether of our own making or not, speak an encouraging word, making him feel that there is a real bond of sympathy existing between you and him.

Men possessing these traits of character are always in good humor, and living examples of real, true sociability. Think, then of the opportunities that are yours and mine.

"To study culture and with artful toil,
To meliorate and tame the stubborn soil,
To give dissimilar yet fruitful lands
The grain, the herb, the plant that each demands,
These, these are arts pursued without a crime
That leave no stain upon the wings of time."

PRIZE ESSAYS AT WHITBY FAIR.

CLOVERS AND GRASSES.

One listening, in the clover fields can hear
  The mower whet his scythe; and far away,
  O'er lowlands odorous with the new-mown hay,
The rattle of the reaper sharp and clear.

Across the reedy stretches of the mere
  The grazing horses send their greeting neigh;
  While, 'mid the silences throughout the day,
The locust's sharp staccato stabs the ears.

Dim shimmering in the heat the violet hills
  Call to us vaguely from a realm of dreams,
Come muffled murmurs of the distant mills;
  And from the meadow's smooth meandering streams
  From upland wheat-fields as his barn he fills,
  We hear the farmer, calling to his teams.

The study of the clovers and grasses of our country opens up to us a vast field, wherein the lover of nature may revel 'ong and not grow weary. It leads away from the trivialities and petty jealousies of life to that free converse with nature, which ever inspires to nobler thoughts and actions. And not alone in this respect is the individual rewarded; but as he becomes acquainted with the nature and growth of the various grasses, is he able to turn his knowledge to account for the benefit of his fellowman, and the enriching of his country.

It has been said by one, that, given good luxuriant grass, anything can be got afterwards; and by another that one of the best paying crops on a farm is a good field of grass, and the most economical harvesting of that crop is done by the live stock of the farm. These statements being generally accepted as true, it will be profitable to make a study of the subject in so far as to find out something of the nature of the grass grown, and its suitability to the soil upon which it is grown.

Among the grasses found to be well suited to this locality, and perhaps best known to most, is the "Timothy." It grows in tufts, its roots never extending very deeply into the soil. Its product is used chiefly as hay, although sometimes the seed is allowed to mature. It is usually sown with "Red Clover," the soil best adapted for its growth being a rich, moist loam. The seed may be sown with either Spring or Fall Wheat; if the latter is chosen, the Clover may be added in the spring. In cutting the grain crop, it is well to set the machine so that a somewhat lengthy stubble will be left. This will hold the snow and thus form a protection for the young grass. Where the soil is of inferior quality, it is advised, as an additional protection, to spread over the young grass a thin covering of straw. This acts also as a fertilizer, producing a noticeable difference in the luxuriance of the crop.

In cutting Timothy it is well to observe the rule "Be in time." If cut before flowering is general, the quality of the hay will be much higher than if the cutting be deferred; although the later cut will be the heavier. It is not profitable to keep a piece seeded down longer than two crops. By this time most of the clover will have disappeared and the remaining Timothy will be too thin to make a paying cutting.

"Orchard Grass" or "Cocksfoot," as it is known in Britain, is not so familiar to us as Timothy. It also grows in tufts and thrives best on a rich clay soil; but it is said

to do fairly well on sandy land if the latter be sufficiently moist. In sowing, the amount to the acre required will be, when sown alone, two and a half to three bushels. This will obviate the tendency to grow in clumps; or if Red Clover be sown with it, this will effectually fill up all gaps left by the grass, and will also assist it to retain an upright position. As a feed hay, one authority claims that if cut at the proper age (before it flowers) it makes a much better hay than Timothy, being greatly preferred by animals, in that it is easier to masticate, digest and assimilate. As a pasture, it comes early, grows fast, continues growing late in the fall, quickly springs up when cropped off, and has about equal nutritive qualities with Timothy, with the added advantage that it grows well in shaded locations.

"June Grass" or "Kentucky Blue Grass," also known as "Spear Grass," "Green Grass," "Smoothstalked Meadow Grass" and "Blue Grass," is one of out native grasses. On good soil it produces a fair crop of nutritive quality. Its roots spread underground, forming a dense network and throwing up a firm turf, thus making it a very desirable lawn grass.

"Red Top" is somewhat similar to June Grass in its network of roots. This characteristic is very necessary to its life, as it grows in wet tracts, where the stock, in treading over it in feeding, would otherwise destroy it. It is very hardy and fairly productive; but somewhat later in starting growth than June Grass.

"Meadow Fescue" or "Randall Grass" makes either good pasture or an excellent hay crop. As its roots penetrate ten or fifteen inches into the soil, it is able to withstand drought well, and as it begins to grow in the spring as early as Orchard Grass, it forms a suitable grass for early pastures. Its best yield is credited to the third or fourth year after seeding.

"Meadow Foxtail" is a plant which thrives well on a heavy soil; but it takes three or four years to become thoroughly established. It matures about three weeks earlier than Timothy, and has a fine head somewhat curved. Like Orchard Grass it grows well in shaded places, but as the seed is very light a fine seed bed is necessary to ensure a catch.

Your attention is now invited to a few of the most important clovers, beginning with the "Red Clover," of which there are two varieties, the common "Red Clover" or "Meadow Trefoil" and the "Mammoth Red Clover" or "Cow Grass," the main differences between them being that the "Mammoth Red Clover" is somewhat coarser in the blade, with narrower leaves, heads larger more open and brighter, is more productive of seed, and is supposed to thrive on less fertile soils. It blooms about three weeks later than the Common Red Clover.

"Red Clover" does best on a rich heavy soil. Its roots form an extensive network and penetrate a considerable distance into the sub-soil, from which they regain much plant food in the form of nitrogen, potash and phosphoric acid. This is brought to the surface, and made available for the crop that follows the clover.

Many farmers find it pays well to use the growing clover as a green manure, plowing it under in preparation for a crop of corn, potatoes or Fall Wheat.

If sown with Timothy it will be found that one bushel of each will be a sufficient seeding for a ten-acre field. This will give a good, heavy covering of grass and effectually prevent the cropping up of weeds.

Much injury is often done the new seeds by the farmer's desire to have his young cattle pasture on them late in the fall. The young roots are in this way left exposed to the winter's frost and much of the piece winter kills as a result. Besides this, the treading of a herd of cattle over the tender roots is apt, in itself, to destroy their vitality.

Although Red Clover acts as a fertilizer on poor worn-out soils, it will not thrive on a piece of entirely worn-out land. With such it will first be necessary to apply

some good manure, and careful experiment has shown that hardwood ashes at the rate of seventy bushels to the acre, ensures a good growth of clover. Thus are we provided with a manure free from weed seeds.

In cutting clover the first crop should be cut as soon as it is well in blossom and only when perfectly dry; then it may be raked and cocked at once and drawn the third day after cutting. This will secure us a hay that will be greedily eaten. Much nutrition is lost by a failure to put the hay in cock as soon as it is fit. Exposure to the sun of hay that has neither been turned nor put in cocks causes the leaves to become brittle before the stems are dry. On the other hand, if the clover be put in cock before the leaves have a chance to become brittle the outside leaves and stems will draw the dampness from the middle of the cock, rendering the whole of an average degree of moisture. An advantage attending early cutting relates to the aftermath, which may be used as a green manure, a pasture, or may be allowed to mature for seed.

"Alsike Clover," much grown at present for its seed, does well on heavy, low-lying lands, and turns out best in a wet season. It reaches its best in the third year's growth.

"Lucerne" or "Alfalfa" is sown by many farmers as an aid to the natural grases in forming a permanent pasture. As it is somewhat delicate the first year it is difficult to get a catch; but once started it has been known to flourish twenty years. It does best on a deep, rich loam with porous subsoil, and as its roots sometimes extend to a depth of sixteen feet, it does well in a dry season. Stock are very fond of it; but care must be taken that they do not partake of it when wet or frosted.

"White Clover" is found in most old meadows. It grows low, producing an abundance of small white blossoms much prized by the honey bee.

"Yellow Clover" is one of the early bites in the pasture, thriving well on most soils, but as it, also, grows low, it is not much sought after.

BENEFICIAL AND INJURIOUS BIRDS.

The farmer has pitted against him three powerful enemies—weeds, insects and rodents. The careful cultivation of his acres and the most scrupulous care in the selection of his seed will, in time, largely free him from the first of these evils; but the insect and rodent remain, and against these he is practically helpless. Happily, however, nature has forces at work preserving the balance between vegetable and other life. If there are many insects working against man, there are also others working for him, and insects and mice alike are under the surveillance of nature's keen-eyed police, the wild birds. In the briefest possible manner it is the purpose of this paper to deal with the relation of our common birds—those that may be found in our country—to agriculture.

Few, indeed, of our common birds deserve to be stigmatized as injurious. In the estimation of our legislators only hawks, crows, blackbirds, English sparrows and robins caught red-billed in the garden, merit capital treatment. Yet even of these excommunicates there is not one for whom a strong plea could not be presented.

All the hawks and owls have suffered for the misdemeanors of a recreant few of their family. For out of more than 40 species only three kinds of hawk and one owl are chargeable with the misdoing for which all are condemned. The hawks that are popularly specified as "hen" hawks are absolutely guiltless of offence, feeding solely on mice, lizards, snakes, etc. The Marsh Hawk's stomach has been known to contain eight mice at one time, and it has been estimated that each one eats on an average at least six each day. The Sparrow Hawk is the commonest and smallest of the family

and may be recognized by its red back. In Minnesota some years ago, a student, M. de Lentrie, put five of their young into a cage where he could watch them. In one month their mother birds brought them 420 rats and mice, 200 mole crickets and 158 lizards—and not one chicken! The only kinds that prey upon the coops are the Goshawks, Cooper's Hawks and the Sharp-shinned Hawk, and not even these cost the housewife as many chicks as her pet cat.

The "moping" owl we see but seldom, as he is working for us while we are sleeping, and though owls are not common, we have more of them than we perhaps think. In the fall the Long-eared and Short-eared varieties are sometimes seen, while the Screech Owl is still occasionally found in our barns during the winter, where it thrives on rats and mice, killing more than it needs, in the simple lust of slaughter. It is also a terror to the English sparrows, destroying them remorselessly. In the summer it lives on mice, grasshoppers, beetles, crickets and worms. Only the Great Horned Owl evinces a liking for poultry, and, luckily, it is not now common.

On his sable majesty, the Crow, it is difficult to pass judgment. The counts against it are many and serious. It is charged (1) that it pulls up sprouting corn; (2) that it eats green corn; (3) that it displays an unhappy fondness for ripe fruit; (4) that it destroys the nests and young of other smaller birds, and (5) that it devours frogs and toads, both of which are beneficial.

On the other hand, during all the time that it is feeding its young, it takes insects alone, grasshoppers, beetles, spiders and weevil being captured in large numbers. It is an interesting fact that it never destroys the useful little ladybird. Cutworms are its choicest food, so that if it does take its toll of corn, it is only a question of whether the farmer prefers the presence of the crow or the cutworm in his fields. From a careful examination of 1,000 stomachs, it has been found that its food is 33 per cent. animal, 57 vegetable, and 10 mineral. Of the first, 23, or nearly one-quarter of the whole, consists of insects and spiders. Of the second, 21.5 is corn. This is the average of the year, and includes all the waste grain gathered from the bleak winter fields, as in January the per cent. of corn is 28.5, and in February 39.4, while in May and June, when insects are to be had, it drops to 16, and in the harvest reaches only 18. But, unlike the hawk or owl, the crow needs no champion, as no bird is more capable of looking after itself. Of late years it seems to be even increasing in numbers, and if in any locality it is becoming too numerous, it can be shot during its nesting time.

There are charitable souls that have attempted to defend even the House (or English) Sparrow, but on this score the ordinary farmer will be found obdurate to all eloquence. It is true that it consumes a great number of moths, including the tussock, with currant worms, the aphides on apple trees and rosebushes, beetles and the unpopular green cabbage worm. It also exhibits a redeeming partiality for the seed of the knot-weed, a plant that would otherwise destroy our lawns. But against this, the prosecution can urge its wholesale destruction of buds and seedlings in the spring, its inroads on the wheat and oat fields, its filthy habits, its destruction of beneficial insects, and, worst of all, its shameless appropriation of the nests of other birds. Who would not willingly dispense with any service the Sparrow may render, to see the orioles, the vireos, the wrens and the warblers back into their old nests about the house and in the orchards?

The Sparrow has been in this country exactly thirty years, and is steadily increasing in numbers. The most that can be hoped is that organized effort may succeed in now keeping it in check. The whole experienc shows how much more easy it is to make a mistake than it is to remedy the error.

The "Crow Blackbird" or Bronze Grackle, can claim at least an unusually handsome exterior, its feathers having a fine metallic lustre. It is the largest of the black-

birds, and in the fall is said to be choice eating. It has been celebrated in this connection ever since the day when "Four and twenty blackbirds were baked in a pie," of such rare excellence that it was joyously declared to be "A dainty dish to set before a king." But, beyond the eating of a few cutworms and other insects, it has nothing else to recommend it, while both at seed time and harvest it is a scourge to the grainfields. The Red-winged Blackbird can claim a better reputation, some writers going so far as to assert that seven-eighths of its food is composed of weed seed and injurious insects. But that other eighth—— ?

The Robin, the glad harbinger of spring, audacious and sinful, the most rollicking, the most exasperating of our garden visitors—what shall we say of it? We are prepared to forgive much for the sake of such cheerfulness, but at times human forbearance is sadly taxed. Useful it undoubtedly is, and so busy that if it isn't in mischief, it is loading us with benefits. Unlucky is the cutworm that comes under its sharp eye. While its young are in the nest, it feeds them with insects, and their voracious appetite demands that hundreds of our pests be captured every day. But by the time the young are able to forage for themselves, the cherries are ripe, and the result is that when the owner looks at the trees,

"Where the Robins are loud with their voluble whistle",

his rejoicing is turned into dismay. The robins enjoy strawberries, raspberries, and even pears, plums and peaches, until by fall we are as glad to see them depart as we were to see them come, half a year before. The problem as to whether they should be destroyed or not must be decided by each man according to the measure of grace that is in him.

It is difficult to understand why our lawmakers do not place the Cowbird in the index expurgatorius, along with the crow and the sparrow. Charity itself could say little for this despicable bird. It appears early in April, and is common enough in the meadows and beside the streams, where it feeds on insects. Later, it invades the grainfields. But its crowning crime is that it lays its eggs—whitish, covered with brown spots—in the nests of sparrows, finches and Warblers. These eggs hatch first, with the result that the rightful young are crowded or starved out, if they ever hatch at all. In this way every female Cowbird causes the loss of from 15 to 25 valuable birds every season. If Nature lays the necessity upon boys to shoot birds, let it be these robbers.

The Blue Jay is another of our birds that is of uncertain utility. It is particularly beautiful, but, from the farmer's and gardener's standpoint, handsome is that handsome does. The Jay does not damage the grain, and he eats a number of insects, but he has an eye for fruit, and a sad predilection for the young of other birds, as well as for robbing and destroying nests. Which means that it cannot be tolerated around the garden.

The Woodpecker, unfortunately, labors under a cloud, owing to the prevalent notion that by piercing the bark of trees it kills them. For the comfort of the doubting, and in justice to the bird, it may be said that no case is on record of a tree being killed from this cause. Only one species is a sap-sucker, and it is migratory, so that no suspicions need be entertained of any woodpecker seen in the winter. The Red-headed Woodpecker is the most beautiful of its kind, but is somewhat uncommon. It is an expert fly-catcher, and has a taste for grasshoppers, beetles—and ripe fruit. In the spring it devours a large number of mature insects that are just preparing for a season's devastations, capturing many of them in the crevices of the trees.

For a week or so in the spring, the Flicker, Higholder, or Golden-winged Woodpecker, is abundant, and frequently may be seen on the ground, demolishing ant-hills, its curved bill and long tongue showing its aptitude for the work. Its value is debatable, owing to its relish for corn and cherries, and its reputation for destroying the nests of the bluebirds.

With the Bittern, Kingfisher, and Common Wild Crane, our list of "doubtfuls" is practically complete, so far as this district is concerned. The Bittern and Crane may be found near the Scugog, leaving the world the poorer by every frog, lizard and fish that they despatch. The Kingfisher's loud, rattling cry can be heard by the streams and ponds in the spring. It subsists on fish.

The English Sparrow has several excellent and virtuous relatives. The Vesper Sparrow, one of our "gray birds," for all its tender and plaintive song, has a fine appetite for insects. So, too, has the Clipping Sparrow, which has been largely banished by the English marauder. One Iowa writer estimates that in that State the tree sparrow alone consumes 875 tons of weed seed in one season.

The Barn Swallow merits nothing but our best wishes. It fares on the smaller winged insects, and saves us from swarms of midges; often it gorges itself on large female ants. Its worst enemy is the sparrow, with whom it has to battle for its nest.

After the middle of May one has only to seek the clover fields or moist meadows to hear "The garrulous Bobolink lilt and chime over and over." With its exuberant and irrepressible spirits, the Bobolink is a joy and inspiration, and the more welcome to us poor materialists from the knowledge that it lives entirely upon insects. The chief item of its bill-of-fare is the caterpillar that feeds on the clover. After the hay is cut it frequents rice-ponds in large numbers.

It is to be regretted that, owing to the ignorance of man, and the bird's size and slow flight, so many Meadow Larks should be shot, so that we appear to be doomed to lose this useful bird. Its food is chiefly the worms that emerge only by night, it being endowed with the ability to discover their retreats. Later in the season it turns its attention to the grasshoppers.

The Kingbird is a familiar summer visitor, and may often be seen perched on the top of a dry mullein stalk in a pasture field, darting from its point of vantage at beetles, dragon-flies, or other insects. It is the most assertive of our birds, taking good care that its presence is announced to all its neighbors.

Towards evening the Night Hawk's peculiar cry is to be heard over the meadows. Its graceful, sweeping flight is not wholly for pleasure, for suddenly it may be seen to plunge downward with great rapidity, rising again as suddenly. This movement has caused a cheerful Chatham poet to burst forth:

"With half-closed eye and quivering boom,
Descending through the deepening gloom
Like plummet falling from the sky
Where some poor moth may vainly try
A goal to win—
He holds him with his glittering eye
And scoops him in."

June bugs and night-flying moths and beetles are its principal food.

The Chimney Swift, like the nighthawk, lives entirely on insects, and, like it, is most active toward evening, catching its food only on the wing. The Whip-poor-will, whose soft, mournful notes may be heard at night in the swamps, also preys upon night moths and beetles.

No bird is more prodigal of its music than the Red-eyed Vireo, whose loud, clear notes are maintained all through a summer's day. During the earlier part of the spring it feeds entirely upon insects. Later, it prefers raspberries, and the berries of some of the wild plants. The Vireo is one of the greatest sufferers through the imposition of the cowbird.

What would summer be like if the dainty little Warblers could not be found in our orchards and shrubberies? We have many varieties, including the Yellow, the Canadian, and the Black and White. Although not notable singers, they are cheerful and

eminently good to look upon. They live wholly upon insects, exterminating hosts of the small caterpillars that infest the trees, and still smaller insect enemies.

The Phoebe, or "Peewee," is one of the earliest birds of spring, building its nest under bridges, beneath the eaves of a deserted house or under a verandah. It feeds on insects alone.

It is not every orchard that is favored by the pert, industrious Wren. It is a lovable little creature, and one of the most indefatigable insect-hunters. Ninety-eight per cent. of its food is composed of insects—grasshoppers, beetles, caterpillars, bugs and spiders being taken in almost equal proportions.

The Chickadee is also a noisy and merry little insect-hunter. It is said that a single pair of these birds kill daily 500 of our pests, and frequently 300 cankerworm eggs have been found in the stomach of one bird. In the winter it pursues its sprightly way in the swamps, often accompanied by the White-breasted Nuthatch or the Golden-crowned Kinglet, all three actively searching for insects.

The Snowflake, or Snowbird, is a pleasant relief from the barrenness of the winter air. It is always seen in flocks, and consumes large quantities of weed seed.

Even the tiniest of our birds, the Ruby-throated Humming-bird, does us the service of assisting in the fertilization of our plants and flowers.

The most unfortunate thing about the Catbird is its mewing call, the evidence of its relationship to the Mocking-bird. It destroys innumerable caterpillars and other insects, especially in the spring. It afterwards indicates a taste for elderberries and small wild fruits, sometimes encroaching even upon the garden.

The Cuckoo is not a common bird, but may occasionally be found in our orchards, arriving about the end of May. It helps itself now and then to wild fruit, and is accused of sucking the eggs of other birds. Be that as it may, it has the distinction of being one of the few birds that habitually feast upon hairy caterpillars. The stomach of one cuckoo, shot in 1887, contained 250 half-grown web-worms, one large beetle, one large plant bug, and one snail!

A few years ago the Bluebird, resplendent in its fine plumage, was a familiar sight on our farms, welcomed, like the robin, as spring's herald. But it has gradually given way before the tenacious sparrow, and is now fast disappearing.

The fate of the Bluebird, the Meadow-lark, the Cuckoo and the Thrush appears to be overtaking still others of our birds, and only a few species are more abundant than they formerly were. It is time—high time—that public attention were drawn to the fact that, while our birds are becoming fewer, the number of our insect pests is yearly growing greater. If the wanton destruction of our wild birds continues at the same rate for the next quarter of a century, the effect upon our farms and gardens will be such as is not pleasant to contemplate. The situation is largely in our own hands, and the future will be what we make it.

ANNUAL REPORT

OF

ONTARIO

Fairs and Exhibitions

FOR THE YEAR

1903

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

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ANNUAL REPORT

OF

FAIRS AND EXHIBITIONS

1903

To the Honorable, the Minister of Agriculture:--

Sir,—I have the honor to present herewith the Third Annual Report of the Fairs and Exhibitions. In addition to the report presented of the annual meeting of the Canadian Association of Fairs and Exhibitions, we have included the Fair Circuits and the reports of the several expert judge sent out by the Department during the fall of 1903.

I think you will find from a perusal of these reports that the judges have been universally well received and their work appreciated. The many educational features suggested by the Superintendent have been adopted by several Associations, and I think we can truthfully say that a step has been taken in the direction of permanently improving the work of our Fall Fairs.

I have the honor to be, Sir, your obedient servant,

G. C. CREELMAN,

Superintendent of Agricultural Societies for Ontario.

Toronto, November 1st, 1903.

OFFICERS FOR 1903.

Directors:

James Mitchell, Goderich.
John Farrell, Watford.
B. F. Butler, Marmora.
D. G. Hanmer, Mt. Vernon.
J. Y. Murdock..... .....Jarvis.
J. W. Shepherd, Cayuga.
Rev. C. B. Clark, Russell.
Frank Metcalfe, Blyth.
J. M. Gardhouse.....Weston.

Auditors:

President ....J. T. Murphy, Simcoe.
1st Vice-President ... .R. R. Mowbray, Kinsale.
2nd Vice-President ....W. B. Sanders, Stayner.
Recording Secretary ....Alex. McFarlane, Otterville.
Corresponding Secretary ....G. C. Creelman, Toronto.

THE CANADIAN ASSOCIATION OF FAIRS AND EXHIBITIONS.

ANNUAL MEETING.

The annual meeting of the Association was held in Richmond Hall, Richmond street west, Toronto, on Wednesday and Thursday, February 18 and 19, 1903. The proceedings were opened by a few appropriate words of welcome by Mayor Urquhart, who spoke on behalf of the members of the Council and citizens of Toronto.

PRESIDENT'S ADDRESS.

After thanking the Mayor for the cordial welcome extended to the Association, the President, Mr. J. Thos. Murphy, spoke as follows:—

GENTLEMEN, Again are we met in session and I am pleased to see the interest exhibited in our Association, and the efforts put forth to place our Fairs on a more stable and educational foundation. It only requires the determination of the representatives to do this, and I trust every suitable and laudable means may be employed to accomplish such a purpose.

I took occasion in my address last year to refer to the matter of expert judges, contending then that in no matter connected with our Fairs a more momentous question was involved. I may say just here that our Society inaugurated the one judge expert system in 1885, and so satisfactory did it prove from the first that no thought was ever entertained as to its being abolished. From our long experience in the system I am firmly convinced that nothing will so much conduce to the stability, permanency and success of any Association, as the adopting by all the Fairs of the expert judge system, and I am free to express my belief that nothing has so much strengthened our Society, not only with the exhibitors but with the public at large, as that same system. I am constantly in receipt of letters, as well as being personally informed by exhibitors, that they feel the utmost confidence in exhibiting with us, well knowing that the judgments given are by men in whom the greatest confidence is placed, and that generally they would rather accept the awards with us without a money consideration than those at the general fairs with inefficient judges and a money consideration given. When we find the exhibitors themselves expressing their approval in this way, it is very evident the greatest satisfaction is secured.

I would therefore impress upon all the delegates here to endeavor by all in their power to influence their Societies to adopt the expert Judges, as I have no hesitation in saying that they will more than pay for themselves by the extra gate receipts and entry fees.

I was further pleased to see so many of the Fairs accepting the liberal offer of the Department and adopting the system last year, and from all reports, as well as from personal observations and interviews, I was greatly gratified to find the system was so highly upheld and such confidence evinced in its workings.

The question of the appointment of a Superintendent of Fairs was also mentioned, and, as you are aware, the Hon. Minister of Agriculture stated that he saw conclusively the same was needed and very kindly intimated that Mr. Creelman might be available. The announcement gave us the greatest satisfaction, as we had by common consent made up our minds that Mr. Creelman was the one fitted in every way for the position and would be a

source of strength to us. According to resolution a committee was appointed, in connection with a deputation from the Ottawa Valley, to visit the Hon. Minister of Agriculture and urge the appointment of Mr. Creelman. At that interview we were very warmly received, our views stated, and same promised serious consideration. The appointment was made, and it is a source of gratification to know that Mr. Creelman has more than met our expectations. He entered into the work with the greatest energy, and by his guidance and experience has placed us in an advanced position in this short time. I am sure I only express the desire of our Association in thanking him and expressing entire confidence in his administration of our affairs.

The adoption of the rules and regulations submitted by the committee appointed for that purpose, by a very large majority of the Fairs in the Province, is another cause of gratification, as it brings us more into unison and enables us to work more harmoniously together. I hope that any Fairs who have not yet adopted the same, may see their way clear to do so at once, and thus strengthen and solidify our Societies.

As the educational feature seems to pervade the minds of the managers of many of our Fairs at this present time, endeavoring by all in their power to gain the attention and assistance of our young people, I am highly pleased to see that many Fairs are adopting "School Children's Day," and also encouraging our children to exhibit collections of grains, wild flowers, leaves, weeds, insects, native woods, etc., or what is termed "Nature Studies." This is a branch of education that should be encouraged, as it furnishes one of the most useful and interesting departments at a Fair, and will certainly result in making the children familiar with the objects with which they daily come in contact.

At our last meeting a great deal of discussion was indulged in regarding the mode of conducting our Fairs. Some were of the opinion that to have a successful Fair the public demanded horse racing, attractions before the grand stand, etc., while others who had been giving the matter serious consideration had concluded that something must be done on other lines to make them more of an educational nature. To assist all, and hoping some satisfactory conclusion might be arrived at, arrangements were made by Mr. Hodson, Dominion Live Stock Commissioner, and Mr. Creelman, our Superintendent, to conduct a Fair on an educational basis.

The Associations of Ontario and Durham assented to having their Fair as a model, and the same was held at Whitby. As this Fair had previously been one specially devoted to attractions, etc., great credit must be given the directors of same in making so radical a departure. The Fair, however, was held, and, as I had the pleasure of being present, I can truthfully say success crowned their efforts. The Fair was thoroughly educational; horse racing, attractions and everything of an objectionable character being excluded from the grounds. The expert judge system prevailed, and lectures and addresses on such subjects as apple packing, poultry raising, killing and dressing, ripening honey, butter judging, etc., were delivered. The Women's Institute also became deeply interested and had a Domestic Science tent on the ground, and excellent addresses given by the Misses Smith and Hunter.

The one great feature was the experimental plot, which I consider was one of the most interesting and instructive lessons ever seen at any Fair, and almost every Society had its own particular system, many being very worthy, while others are cumbersome and require too much work in connection therewith. As the work in connection with a Fair is very wearisome and trying at all times, very much of said work, especially that of making the entries

being rushed on one or two days before the Fair, and in fact very much of it in most of instances on our Fair days, it would no doubt be of great advantage was highly appreciated and enjoyed by those in attendance. No doubt the Whitby Fair will be considered an object lesson by many Associations, and will have the effect of inducing others to follow in the same lines.

A subject of discussion with us for many years has been that of a uniform set of books for Fair work. We found in debating this question that if some general system could be devised and all secretaries have the privilege of adopting same. As to making it compulsory for all Fairs to use a uniform set, I would advise that the subject receive the most thoughtful consideration; otherwise dissatisfaction might prevail.

It is very gratifying to us as representatives of the different Fairs in the Province to acknowledge the many efforts put forth by the Department of Agriculture in diffusing the great amount of knowledge to the various branches of agriculture, horticulture, dairying, fruit growing, etc., throughout our Province, by the giving of lectures, supervision of cheese and butter factories, and many other subjects, thus fitting and preparing us in taking a more prominent position in the markets of the world. In so doing the Department has undoubtedly earned the thanks and cordial approval of this Association.

The thanks of the Association is also due to the Hon. Minister of Agriculture, Deputy Minister James, and the other gentlemen who are so kindly addressing us during this session. We can only hope and trust that from the instruction received we may be enabled to still make further advancement on lines conducive to much greater progress.

Especially should we be gratified to have with us again F. W. Hodson, Esq., Dominion Live Stock Commissioner, who has always taken a very prominent part in our transactions, and striven at all times to educate us up to the highest standard. Occupying the distinguished position he does, and with the knowledge gained by his extensive intercourse with the various bodies and associations on the continent, I am sure we are only too pleased to have his valuable aid and counsel, and I only voice the opinion of this meeting in tendering him our thanks for same.

In concluding, I sincerely trust that all subjects coming before us may receive the most careful consideration, and that our meeting may be, as all former meetings have been, of the most friendly and courteous character, and that each and every one may strive to do their utmost for the advancement and progress of our Fairs, showing conclusively to the country at large that we have the best interests of agriculture at heart.

REPORT OF THE SUPERINTENDENT OF FAIRS AND EXHIBITIONS.

By G. C. Creelman, Toronto.

Just one year ago, at the request of this Association, I was appointed Superintendent of Fairs and Exhibitions for the Province of Ontario, and it is therefore my privilege at this time to give you an account of my stewardship, and at the same time to go a little farther and outline for your consideration some of the work we have now in hand, and some that it is proposed to carry out during the coming year.

Rules and Regulations.

One of my first duties was to read carefully the rules and regulations of all Agricultural Societies in the Province, and then with the assistance of the different Agricultural and Live Stock Associations, draw up a set of rules and regulations that would, in general, be applicable to all Shows. I do not believe it is possible to make a set of rules that in every detail will fit every case, but I do believe that nine out of ten of our Shows have rules in their prize list which they do not carry out, while, on the other hand, they lack rules that are necessary for the furtherance of the objects they have in view. In the set of rules and regulations sent out one clause in particular came in for much criticism. This was the one in which it was suggested allowing only ten entries on each membership ticket, and after that, ten cents should be charged for each entry. I still believe this to be a good rule, and I know of more than one man in this house to-day that can tell you of its successful working in his district. I would like to have this question debated by the members present. I would also like to have a free discussion of all the rules, with the hope that we may from year to year get more light upon the subject, and by and by get a set of iron-clad rules that will back up the officers in their endeavor to put on a good, straight Show, that will please their patrons.

Model Prize List.

In March last we sent out in printed form a so-called "Model Prize List." From the catalogues received later in the season I know that quite a number adopted suggestions from this list. This is all it was intended for, and I trust it proved helpful to many of you. Many of your prize lists still need revising. Not in the way it is generally done, namely, by calling together a large committee and talking the matter over, one man suggesting one thing and another, another thing; but it must be done by a small committee of men who know your conditions, and who first procure all the information they can by corresponding with the Superintendent and with the managers of the best Shows in the Province. This committee should then report to a general meeting, and the items be read over in detail; always keeping in mind that those animals and products that are most profitable in the district should be most liberally dealt with in the prize list.

Again, in printing the prize list, your secretary should not hesitate to spend an extra dollar or two, if necessary, to make the catalogue look attractive. A neat, tidy prize list will attract the best exhibitors, and should be an index to the character of the Fair held.

Competent Judges.

A great step has been taken in advance this year. Directly, we supplied fifty-two Fairs with men to judge all of their live stock. A number of others also made application, but either their dates were already fixed so that they could not be arranged in a circuit, or the Fair Boards were not willing to allow us to set the dates for the holding of their Show.

I may say that I was agreeably surprised at the uniformly good reports received in reference to the work of these judges. Occasionally a complaint came to us, but on the whole we received nothing but kind words on behalf of the judges sent out. Indeed, men who did not receive prizes at all, or only second and third-class ones, have written to say that they would like to

have the same men judge their stock again, because they can now see where they have made mistakes in breeding and are going to profit by their experience.

Already a large number of Fairs have signified their desire to have us appoint judges for them, and we expect this year to have a larger number of circuits than ever.

In preparing for this work it has been arranged with the authorities of the Agricultural College, Guelph, for a two weeks' course in stock judging, commencing on March 17th. This will include the judging of all light and heavy horses, beef and dairy cattle, sheep and swine. The best judges in Canada and the United States are being procured to assist in the course, and all the men who expect to judge in circuits at our Fairs next fall, will be expected to take this course. In this way we hope to secure uniformity among our judges.

The question has been asked, "Why supply judges for live stock only?" The time may come when it will be necessary to supply judges in other classes, but in the meantime, so long as eighty per cent. of the farm crops of Ontario are fed to live stock, we believe we can do no greater work for the country than by leaving no stone unturned to aid this industry. It would avail us little if we were to devote millions of dollars to the production of farm crops and then waste these foods by feeding them to inferior animals.

Annual Report.

In conclusion I would say that the report for last year's work is pretty well summed up in the Report of the Superintendent, which was mailed to you during the past month. If a copy did not reach you, you should procure one and read it carefully before the next meeting of your Board. We put on the report a lot of time and study, endeavoring to make it as practical and up-to-date as possible. For next year's work I now solicit your hearty co-operation. I will at all times be glad to receive suggestions from anyone, and adopt them wherever practicable. And not only myself, but I may speak for our Deputy Minister, Mr. James, and the Hon. Minister of Agriculture, Mr. Dryden, to say that these gentlemen are at all times at your disposal to furnish any information which they may possess.

THE OUTLOOK FOR FALL FAIRS FOR 1903.

By G. C. Creelman, Toronto.

We are very much encouraged at the outlook for next year. - Fairs that most of you people have never heard of have written to us for help. Judges are being asked for from Essex to Glengarry and as far west as Port Arthur. - In fact I see delegates here to-day from the last named place.

Suggestions for 1903.

1. Competent Judges. This I believe to be of the very first importance. I think it cheaper and better that you should join circuits if possible. In that way first-class men will be assured. If this cannot be arranged, however, start early and get good men for each of your classes, and when engaging your judges arrange to pay them for their services. You cannot expect good men, whose time is valuable, to put off other engagements or neglect their work to attend your Show without compensation.

2. Good Accommodation for Exhibits. It is your duty to see that every one of your exhibitors is properly accommodated when attending your Show. Better cut out several clases altogether for a year or two and use the money that would go for prizes in those classes to properly equip your accommodation for others. Many of our best farmers inform me that they will not go to certain Shows because they lack good accommodation for their animals or produce. Under this heading I would like also to include the necessity for marking off good Show rings, where both the judges and the people would have an opportunity of seeing the animals to advantage. Where you are not able to have fenced paddocks you should at least have the rings roped off.

3. Attend to Details. Most Fair grounds in Ontario could stand a little more attention to details just before the Fair opens. All long grass should be cut; drives should be trimed; holes filled up, and the fences and buildings put in repair. This may seem like a small matter, but when things do not please the eye of the visitor when entering the grounds, he is apt to be prejudiced against anything going on there.

4. Shows should last at least two days. Where possible the Show should extend at least over two days. That is, the live stock should be kept over night. Nearly all the educational value of a Show is lost if the exhibits are judged right up until the time they are taken away. It must be kept in mind that the exhibitors comprise a small percentage of those in attendance. It is the ninety-and-nine who come to see, that must be catered to, and if there is any educational value in a Fall Show at all, it is in the examination and comparison of the products after they have been judged. If arrangements cannot be made for keeping the live stock over night, then your rules should be strict about exhibits being on the grounds before ten o'clock, and judged before dinner.

5. Rules and Regulations. At your next Board meeting a competent committee should be appointed to consider rules and regulations. This committee should examine carefully the rules and regulations of the best Shows and make a report at an early date to the Fair Board. When this is done the Board should appoint a small executive committee to carry on the work of the Association from that time until the close of the Fair. In addition, one good man should be selected and given charge of each class exhibited, and should be held responsible for the management of that class throughout the continuance of the Show. Where you have stables for stock I think it highly desirable to charge a stall fee instead of the entrance fee for each animal. The amount of this stall fee should then be added to the increase of prize list in that class. In most Fairs there is also a tendency to allow too many entries for $1.00. This should be regulated and a special charge made for all entries over a certain number.

6. Prize List. A committee should also be appointed on the revision of your prize list. The prizes should be increased in such classes of farm produce and live stock as are most profitably produced in your district, and you should cut out entirely all those things that are no longer ornamental nor useful to your people.

7. Programme. There should be a printed programme for each Fair day, stating what will take place on the grounds at each hour of the day. Where this has been tried it has been found to prevent crowding between three and four o'clock in the afternoon, and gives everybody an opportunity to see the judging, and such things, in process. In preparing your programme you must start early, and engage the services of such persons as you think will educate and entertain your people.

8. Educational Features. In arranging educational features you must keep in mind that most people prefer to take their information through the eye, hence a Fall Fair is not the place for much speaking, but rather for doing things. Farmers especially will learn more by seeing a thing done than by reading about it. If you have farm machinery arrange to have it in operation. If you have incubators see to it that the eggs are set so that the chickens are coming out at the time of the Fair.

9. Experimental Plots. This is something that could be carried out on every Fair ground in the Province of Ontario, and I have information that as least five Fairs will introduce this feature next year. I will not enlarge on this feature, as a full description is given in our last report, but will say that where introduced last year it proved, in my opinion, the most attractive feature of the Fair.

10. Entertainment for Townspeople. It must be remembered that the farming element alone are not the only ones to be catered to at a Fall Fair. Some entertainment must be provided for the townspeople, and this is one of the things that has yet to be worked out. Athletic contests, sports on horse back, riding and driving by ladies, should have a place on the programme.

11. Women's Work. In most districts there have now been organized Women's Institutes. They should be asked to co-operate with the Fair Board, and should have a separate tent or other meeting place on the grounds. They will, as a rule, arrange their own programme, providing someone to give a demonstration in simple methods of cooking, home decoration, etc. This you will find in every case to be a most attractive feature, and should materially increase the attendance at your Fair.

12. Children. School Children's Day should be provided for with sports and games, which should be arranged by a local committee. There should also be prizes offered for children's work, as outlined in our report. There should also be contests for children in such things as the naming correctly of varieties of apples, etc.

13. Good Roads. There never was a time in the history of Ontario when the subject of good roads was so much in the public eye as at present. Township and county councils are commuting their statute labor; pieces of model road are being built here and there, and people generally in the country are talking easier methods of transportation. The Agricultural Societies might assist in this by co-operating with the municipal councils, and have a stretch of good road built at the approach to the grounds. A man should be engaged to explain the process of road-making, and the council might have the road machinery men engaged in the work of road building at the time of the Fair.

14. Time of Holding the Fair. A number of Associations seem weded to a particular date. Last year in endeavoring to arrange circuits, more than one secretary wrote me that their Fair had always been held on a certain Tuesday in October and that it had never been known to rain on that date, and that the majority of the directors would rather do without expert judges than change the time of their Fair. There should be more unanimity in this matter. If we are to arrange our Fairs in circuits,—as I hope the time will come when we may—some Fairs have got to give way a little for the general good. It can surely make no difference whether it is a day or two earlier or later, so long as you know in time to get your prize list. At any rate it is better for me, as Superintendent, to be frank with you now and to say that it will be impossible for us to arange the Fairs in circuits unless you are prepared to give and take a little in this matter of dates. At the same time, in applying for a place in a circuit, if you will tell us the dates

you would prefer, giving us a few day's latitude, we think there will be no trouble in arranging dates satisfactorily.

15. New Buildings. We have had some enquiry during the year in reference to the proper plans for the erection of buildingfs, and I should be glad to have suggestions from any one present as to the best kind of buildings for exhibition purposes. Of one thing I feel sure, the building of the future must provide an amphitheatre with a seating capacity fo rfrom two hundred to three hundred people. There must be platform space on which can be brought in live animals for demonstration. This can also be used for purposes of opening the Fair, and for evening meetings at which can be arranged a progremme dealing with agricultural and industrial subjects.

These are the suggestions I have to make at this time. Some of them you may not be a position to adopt; some you may already have in operation, but all of them I believe could be made useful if put into practice.

DISCUSSION.

MR. HONEY: I do not think that the suggestion made by Mr. Creelman to favor certain breeds in the prizes would work at all satisfactory. We should give all classes of stock as nearly as possible fair play. If we show partiality, there will be trouble immediately.

MR. G. C. CREELMAN: I would encourage any man who brings out a really good exhibit, even supposing he is the only breeder in that line in the county, as it may induce others to purchase these animals; but you would not encourage the short, fat breeds of hogs, for example?

MR. HONEY: No, their day is past.

MR. CREELMAN: Do you include such breeds in your prize list?

MR. HONEY: Yes, we make no exceptions.

MR. CREELMAN: Why not cut them out altogether?

MR. BRIGHT: I agree with the Superintendent on the subject. We had a great deal of experience at the Whitby Fair in South Ontario. Originally, we offered prizes for all the breeds. Our district is noted for Shorthorns, Clydesdales, Shropshire sheep and Yorkshire hogs. Outside of these breeds there was no competition and exhibits were sent from a distance purely to capture the prizes. It is not a dairy county but a beef county; there are more Shorthorns to the square mile than in any other county, and, therefore, we can afford to put up large prizes for this breed without causing hard feelings. We give prizes for other breeds it i true, but they are classed together; for instance, Herefords and Devons, and the prizes not as large, because the competition is not as keen.

MR. EDWARD JEFFS, Bondhead: We make it a rule that a man cannot take first and second prize if there is no competition.

MR. HONEY: Mr. Bright says that they do not have the dairy breeds in his county. Perhaps it would be just as well to try to encourage them.

MR. GIFFORD, Meaford: I think the suggestion is a good one to lump other than the leading breeds together. The prize list should also contain a provision that an animal unworthy of a prize may be ruled out.

MR. LANGSTAFF, Wallaceburg: We have one good breeder of Polled Angus cattle in our district, but because there was only one we made the prizes small; the result was he did not consider it worth while to bring out the best animals he had.

MR. SHEPHARD, Cayuga: I think we have taken a wrong meaning from what Mr. Creelman intended to convey. He intended to convey "the greatest good to the greatest number." Where the greatest number are engaged in breeding Durhams, for instance, the largest amount of prize money should be given for that class. The plan we adopt is to cut off the number of sections where breed is not strongly represented, but we give the same

AGRICULTURAL SOCIETY STATISTICS.

By Capt. W. F. McMaster, Ontario Department of Agriculture, Toronto.

District Agricultural Societies Receipts.	1902.	1901.
	$ c.	$ c.
Balance on hand as per last Annual Report, including fees retained	[illegible]	17,124 55
Legislative Grant	[illegible]	40,878 00
Municipal Grant	[illegible]	9,833 90
Members' subscriptions and [illegible]	[illegible]	29,048 90
Admission fees [illegible]	[illegible]	[illegible]
Money [illegible]	[illegible]	10,923 17
Funds [illegible] Union Exhibition	7,673 [illegible]	8,349 46
Miscellaneous minor receipts	7,114 [illegible]	[illegible]
Balance due Treasurer	788 86	[illegible]
Totals	182,427 20	185,945 93

Expenditure.	1902.	1901.
	$ c.	$ c.
Balance due Treasurer as per last Report	1,245 91	1,281 69
Prizes paid for Animals and Dairy products	[illegible]	[illegible]
" Field, Orchard and Garden products	10,477 60	[illegible]
" Manufactures and Implements	1,905 17	[illegible]
" Fine Arts, Ladies Work, etc	11,550 41	11,367 88
" Previous year	2,300 29	[illegible]
Grants to Union Exhibitions	[illegible]	5,736 97
Purchase of grounds, erection of buildings, interest, insurance, etc	15,641 [illegible]	[illegible]
Paid for loans or mortgages	16,440 57	26,507 46
Meetings, periodicals, purchase of live stock, etc	[illegible]	694 66
Miscellaneous expenses, etc	[illegible]	[illegible]
Total expenditure	159,544 90	166,471 12
Balance in hand or in bank	22,882 30	19,474 81
Total	182,427 20	185,945 93

Assets	1902.	1901.	Liabilities	1902.	1901.
	$ c.	$ c.		$ c.	$ c.
Cash on hand	22,822 30	19,474 81	Due to Treasurers	788 86	1,352 53
Land and Buildings	223,866 00	[illegible]	Prizes due and unpaid	2,746 05	[illegible]
Miscellaneous	[illegible]	4,225 88	Mortgages and Notes	58,818 70	[illegible]
			Miscellaneous	6,999 07	6,988 51
	[illegible]	243,635 37		69,352 68	70,249 61

Entries and Amount Paid	1902. No. of Entries.	1902. Amount Paid	1901. No. of Entries.	1901. Amount Paid
		$ c.		$ c.
Horses	15,761	19,514 37	15,118	19,205 33
Cattle	[illegible]	[illegible]	9,706	10,869 [illegible]
Sheep	7,048	6,754 03	[illegible]	7,012 40
Swine	3,768	4,072 74	4,137	4,047 65
Poultry	[illegible]	1,233 75	14,249	4,343 17
Dairy Products	[illegible]	2,632 81	6,134	2,709 00
Grains and Seeds	6,025	2,304 65	6,083	2,331 53
Roots and other hoed crops	13,184	3,063 26	11,491	3,067 33
Orchard and Garden Products	22,818	5,052 34	21,341	4,924 05
Implements and Manufactures	3,576	1,924 22	3,562	2,041 96
Fine Arts and Ladies' Work and all other objects	36,292	11,586 41	37,871	11,368 38
	137,318	72,023 01	137,061	71,920 29

TOWNSHIP AGRICULTURAL AND HORTICULTURAL SOCIETIES.

Receipts.

	1902.	1901.
	$ c.	$ c.
Balance on hand as per last Annual Report, including fees retained	38,062 77	38,536 59
Legislative Grant	34,768 00	34,621 00
Municipal Grant	12,918 99	13,213 71
Members subscriptions and donations	68,647 65	69,752 38
Admission fees to Exhibition, rent of ground, stalls, etc	65,476 57	67,180 54
Money borrowed on Mortgages and Notes	6,778 30	7,092 63
Funds merged from other Societies for Union Exhibitions	6,546 06	6,238 48
Miscellaneous minor receipts	10,596 62	9,398 73
Balance due Treasurer	2,881 12	2,379 46
Total	246,676 08	248,413 52

Expenditure.

	1902.	1901.
	$ c.	$ c.
Balance due Treasurer as per last Annual Report	1,864 25	574 60
Prizes paid for Animals and Dairy Products	65,820 14	68,462 44
" Field, Orchard and Garden Products	17,416 32	19,445 35
" Manufactures and Implements	2,517 80	2,867 98
" Fine Arts, Ladies' Work, etc	17,527 93	17,054 30
Money paid for prizes awarded in previous years	3,404 17	3,123 35
Grant to Union Exhibitions	9,775 46	12,769 35
Purchase of grounds, erection of buildings, interest, insurance, etc	18,523 60	19,438 08
Paid for loans and mortgages	13,493 63	11,120 73
Meetings, periodicals, purchase of live stock, etc	9,758 40	9,552 77
Miscellaneous expenses, etc	45,314 87	44,558 91
Total expenditure	205,416 57	208,967 86
Balance on hand or in banks	41,259 51	39,445 66
Total	246,676 08	248,413 52

Assets.	1902.	1901.	Liabilities.	1902.	1901.
	$ c.	$ c.		$ c.	$ c.
Cash in hand or in bank	41,259 51	39,445 66	Amount due Treasurer	2,881 12	2,379 46
Value of lands & buildings	200,766 63	194,629 65	Prize money due and unpaid	2,232 55	2,656 84
Miscellaneous	2,311 92	4,466 45	Money owing on notes and mortgages	43,717 46	44 681 17
			Miscellaneous	13,098 89	13,593 83
	244,338 06	238,541 76		61,930 02	63,311 30

Entries and Amount Paid.	1903. No. of Entries.	1903. Amount Paid.	1901. No. of Entries.	1901. Amount Paid.
		$ c.		$ c.
Horses	32,064	29,993 40	33,506	31,078 08
Cattle	16,579	13,253 04	17,257	13,721 46
Sheep	12,127	8,123 71	12,804	8,995 97
Swine	6 453	4,835 84	7,164	5,607 04
Poultry	118,107	4,162 06	19,128	4,397 68
Dairy Products	15,007	5 398 54	14,559	5,445 36
Grain and Seeds	12,347	4 176 71	14,454	4,638 79
Roots and other hoed crops	30,807	5 133 11	30,537	5,705 75
Orchard and Garden Products	44,592	7,787 70	38,437	7,917 46
Implements and Manufactures	5,207	2 554 15	5,734	2,623 38
Fine Arts and Ladies' Work	63,029	17,527 93	65,082	17,519 85
	256,319	103,226 19	258,662	107,650 82

DOES THE TORONTO INDUSTRIAL EXHIBITION HELP OR HINDER THE PROGRESS OF OTHER FAIRS IN ONTARIO?

By Col. John McGillivray, Toronto.

Mr. Chairman and Gentlemen,—The Toronto Exhibtion does not hinder other Fairs, but is a great help thereto. In the first place, it does not take one dollar away from your Provincial grants, as it does not receive any grant from the public funds. I think that the Toronto Exhibition does good to those who visit it. That practically answers the whole question that I am expected to answer. It must be a source of pride to us to know that we in this country, although alongside of the great American Republic, have what we may fairly claim to be, the greatest annual exhibition in the world. Why do I say the greatest? Not that there is as great a show of live stock as you will find at the Royal or at the International in Chicago, but taking the Exhibition as a whole it may claim first place as compared with any other of its kind. This must of necessity be an advantage to our local Exhibitions. Their officers come here to see how we run things so successfully as to place the Toronto Industrial in the front rank of Exhibitions. Not only do the promoters of local Exhibitions visit us, but you will find the foremost men in the Province from all classes present—the foremost stock-men, manufacturers, and dairymen, gather together, together with the best of their products. What is there in that? The farmers come to see these exhibits and go home and try to emulate these products and exhibit them at their own local Shows. The wife is just as busy as her husband. She is not interested in live stock, but finds her way to the Dairy Building and the poultry show, where she will obtain information as to the best class of poultry for her to raise.

Then, too, the Industrial affords breeders a fine opportunity to dispose of their stock. Our Exhibition is so well known that we not only have buyers present from all parts of Canada, including the Northwest, but also from the United States and from the South American Republics, because they see there the best in sufficient quantities to enable them to make comparisons. I cannot see why the question is asked at all as to whether the Toronto Exhibition conflicts with other exhibitions, nor do I know of a single argument that could properly be used in support of such a theory. It may be said, that we have special attractions that ought not to be there; it is said that the special attractions should consist of cattle, horses, and sheep; but I would point out that the Industrial has a different constituency to cater to than what you have in the counties throughout the Province. We have nearly two hundred and fifty thousand people in the city of Toronto, and we are near the cities of Buffalo and Detroit; these people must be interested. The ordinary mechanic does not care about the points of a dairy cow, but at the same time he contributes towards the fund out of which your prizes are paid. The Toronto Industrial Board is composed of keen men who are endeavoring to purify the Exhibitions of this country and will do all they possibly can to recognize the principle on which the Exhibition was founded, namely, the education of the people of the Province. If you will compare the special attractions of last year with those of five years ago, you will see that they have made great advance as regards propriety and in other directions as well.

Mr. Laidlaw, Guelph: I think all will agree that the Industrial is one of the greatest educational influences we have, but at the same time it is true that the special attractions have had a tendency to make people dissatisfied with their own local Exhibition. We have been foolish enough in many instances to try to introduce these attractions at our local Shows. I think perhaps the Industrial is a little to blame in this respect.

THE PRESIDENT: I think if any harm has been done to our local Associations it has been in the line of special attractions. I do not say that the Industrial is responsible for it, but it has had the effect of inducing some local Associations to follow its example, which they cannot successfully do, as they have not the means. Such Societies are not, I fear, shaping their course towards success; that is the only fault I find with the Industrial.

PLANS AND SPECIFICATIONS FOR FAIR BUILDINGS.

JAMES A. KEYES, St. Catharines: I think that a great amount of good could be accomplished if the Department of Agriculture would prepare a set of plans and specifications for Fair Buildings that would be up-to-date and could be adopted by Societies wishing to erect buildings. By that means, the best that could be obtained for the money would be made available and a uniformity in Exhibition buildings would result. With that in view, I beg to move the following resolution:—

"That this Association do petition the Minister of Agriculture to have prepared plans and specifications of a set of Exhibition buildings that would be suitable for, and within the means of the District and Township Agricultural Societies of the Province."

MR. F. A. GORING seconded the motion.

MR. MCKENZIE, Bruce: I think the suggestion is an exceedingly good one. We all have to put up new buildings from time to time, and are often at a loss to know how to proceed. We know that the Fair of the future will require something different in the way of buildings than the Fair of the past and I consider that such plans would be of great assistance.

The motion was then put to the meeting and declared carried.

MR. G. C. CREELMAN: I should be glad if the meeting would state its opinion as to the maximum and minimum cost of buildings should be.

MR. MITCHELL: If plans were prepared for buildings costing say a thousand dollars, any architect could estimate from these what a larger building would cost if a Society required same.

ADDRESS.

BY HON. JOHN DRYDEN, MINISTER OF AGRICULTURE.

MR. PRESIDENT AND GENTLEMAN,—I am extremely pleased at the interest manifested in the work of this Association. Looking back over the year 1902, I am sure I may congratulate you and congratulate myself and the country on the successful issue of the plans we formulated a year ago at the meeting of this Association. I think I may congratulate you on the considerable amount of educational work that has been accomplished all over the country as a result of the putting into effect of those plans; and more than that, on the increased interest that has been manifested everywhere in the work of the Agricultural Societies. A considerable portion of our people had ceased taking any interest in agricultural Exhibitions. To-day it is different; new life has been infused; and this Society has had much to do with it. You have been enabled to inspire the officers and directors of our agricultural Societies with fresh enthusiasm; you have presented new objects for attainment, and you have filled them with greater faith and greater hope

in the future. It is probable that some of you look back on the work of the year with far different feelings from those you entertained at the close of the year previous when you had nothing more attractive to contemplate as a result of your efforts than what I shall call a fakir, gambling, horse-racing Show. This feeling would be borne upon you still more strongly if it happened that you put a few dollars into the hands of your boy to visit the Show and enjoy himself, only to find that the whole of it had been taken away from him by dishonest means as soon as he got with the Exhibition grounds. Such proceedings are surely enough to sicken our best people of agricultural Fairs and induce them to say that they will have nothing further to do with them. On the other hand, if you have been so fortunate as to be the director of a Society that has placed before the people that which is useful and valuable, the more you think about it the more pleasure and satisfaction will you feel, and you will feel encouraged to devote in the future still more time and energy to the promotion of such a Society.

Not the least of the good results that have been accomplished is the publication of your annual report. It is full of useful information, and just the kind of information that people will want to receive who are turning their attention to the improvement of their Fair and its management. It will not only give them information, but the reading of it will arouse in others an interest in the subject, and will be an inspiration and an incentive to them.

I should like without assuming to dictate, to offer a few suggestions for your consideration for the future. First, I should like to suggest to those who have to do with the management of our Exhibitions, that they avoid extremes. The tendency of human nature everywhere is towards extremes. You often observe that a man in order to avoid one dilemma will go to the opposite extreme. For instance, supposing you have decided to fight what you call vulgar, foolish attractions: do not make the mistake of saying that you will have no attractions at all of any form at your Exhibition. There are amusements and recreations that are perfectly proper and should be admitted. Supposing you have taken the ground that you will do away with horse racing, there is no necessity for your taking the ground that you will not provide any sort of accommodation for the proper exhibition of your finest driving and saddle horses. Supposing you undertake to exclude the vulgar element (and that ought to be kept out), there is no reason why you should prevent the sale of sandwiches and candies; but there is sometimes a tendency to keep all these things out because you have taken the other ground. Choose a medium course and you will find that you will come nearest the right thing.

I think you will do well if you aim to have something of interest for all classes of your people. I am one of those old-fashioned kind of men who believe that an agricultural Exhibition ought to be of such general interest that all the people may spend a few hours there with interest and profit. I should like if you could realize that it should be a meeting place for all our people, even if they have no special interest in horses, cattle and sheep. I think that the best conducted Fair in this respect is the one presided over by your President in the County of Norfolk, where they keep away outside attractions and hold a purely agricultural Show, and yet all classes of people gather there on the afternoon of the principal day, and probably on both days to a considerable extent, and meet one another. People must be made to feel that the Exhibition is a pleasant place to come to.

I hope that in the future you will also be able to interest the children and the young people. Do not forget them; let them have something in the

way of athletic sports, etc. When you succeed in getting them there, they are certain to receive information along many useful lines.

Let your programme be so arranged that there be no antagonism between one thing and another. You ought not to too closely imitate one another. There are certain things in connection with an Exhibition that ought to be followed by all; but I would suggest that all classes are not exactly alike, and what suits in one place is not certain to suit in every other place. The management must use their brains in coming to a conclusion as to how far to follow the programme suggested to them, so as to specially interest their own people. If you keep before you the one object—the doing of good and not evil, then you can freely do as you like to suit the special circumstances of any particular district.

Work in connection with these Exhibitions ought always to be public spirited work: I mean public-spirited as against that which is merely personal. I have had as much to do with Exhibitions in my time as anybody, perhaps. You cannot help but see that sometimes there are persons who desire positions in connection with the management merely to gain some personal end. That is lamentable when it occurs. We should all aim at something better and higher, and undertake the work in a public-spirited way. The gentlemen who act as directors and officers of these Societies often deserve great credit. They work without pay, and occupy positions in which they are very liable to be misunderstood and improperly found fault with, but there are some of the rest of us in even higher positions who have the same thing to contend with. The only consolation you will have is that you are engaged in a work that is accomplishing some good, and if you remember that, you will be able to stand the criticisms. At all events we can always remember that we are Canadians and that what we are doing in connection with the Agricultural Society, or elsewhere, has a tendency to improve the products of our country and build it up. But we ought to aim at something even more than that—we should aim to present higher ideals to all our people, and so far as the younger portion of the community is concerned, doing what we can to strengthen their character and prepare them for the position they are to occupy in our country, which I am sure we all love.

If you are able to keep these things in mind, I am sure you will agree that there is room enough yet for great progress in connection with our Agricultural Societies. They take a great deal of money. Sometimes people think that the money spent comes from the municipalities; but the Province of Ontario, out of its ordinary funds, spends $75,000 a year in assisting Agricultural Societies, and this large sum would never be devoted to this object unless it were felt that the work you have in hand is accomplishing much in the interest of all the people.

SCHOOL CHILDREN AND THE FAIR.

By Dr. Jas. Fletcher, Ottawa.

Mr. Chairman and Gentlemen,—The Agricultural Societies and annual Fairs are one of the most important educational interests that we have in Canada, and to these regular meetings and the work done at them I think we owe a large part of the progress of Canada to-day.

The subject I have to bring before you, although it may seem somewhat new, is in reality a very old one. Nature study, as a part of education, was taken up years ago by Agricultural Societies, often simply to attract the

attention of boys and girls to the common objects about them and to teach them to think for them. In the old land there have been prizes offered by Agricultural Societies for just such work as is now being presented to you as something new. Judging from the Exhibition held at Whitby, the new departure was a great success. As I acted as a judge at that Exhibition, I had an opportunity of hearing the remarks of people who did not know they were interested as they walked around the room. They would say, "What have we here? Oh, bugs and weeds." Some went by with a grin and thought they had done with it, but 99 out of 100 stopped to look at the exhibit, and when told that it was children's work, expressed great surprise that it could have been done by children, and then began to consider of what use it was likely to have been to the children who prepared it.

Not only do these exhibits of school children's work interest the visitor, but they bring the children's parents into sympathy with you and with the work of the Society, so that it is of use to you as managers of the Exhibition. From the children's standpoint, it gives them great happiness in making that collection, not of rare, but of the very commonest things. Is it not remarkable how neglectful we often are of the common things of life? We want something rare, something that comes from a long distance; but it is the common, every-day things that are most important to us. The very commonest things are the things that people look at and do not see, for seeing is appreciating and thinking. By drawing the attention to the common things of life and by teaching the children to draw conclusions from them, you are going to do away with one of the greatest ills of this world—ignorance. Nearly all the evils of life arise from the fact that people do not know. The children of to-morrow are going to know. They will have a chance under this new education to know better than we do. The world is progressing along every line, not only in educational matters, but in every branch of thought. This new branch of education, nature study, is taking the whole world by storm. In every Province of this Dominion they have already adopted it in the schools or are making provision for adopting it.

Now let me tell you of some of the ills of not knowing that will be done away with. Last year a disease destroyed half the potato crop of Canada. Why was it? Simply because the generality of Canadians did not know that there was a remedy which could easily, cheaply and effectively be applied by everyone. It will save more than ninety per cent. of the crop, whereas if it is not applied, in such a year as the past, half the crop will be lost. That remedy has been published for ten years.

The greatest fear that children have is the fear of the unknown. I claim there is no possible reason why a child should be afraid of being in the dark, and nature study will help to overcome this. For twenty years I have been challenging every statement in the papers in regard to three things. One is as to babies being carried off by eagles and another is as to people being killed by wolves. Such stories are wholly false. You have all been told or read that spiders poison and bite people; I say they do not. Women are all afraid of snakes, but these are harmless except in one or two localities. These fears are all unfounded. But most of our people do not know that these things are worth knowing about. They say, "Bugs and weeds; nothing in them." Nothing that Canada loses one-tenth of its revenue every year from these causes? The Ontario Government had made provision that teachers may know of these things and teach them to children, not to make scientits of them or finished scholars, but to teach them about the elements of the common things that surround them: a knowledge of insects, that some are useful and some are harmful. The idea that insects are useful is new to

some, and yet of all the thousands of different insects, perhaps half are beneficial and half not. Every man almost will crush a spider. Why? Because he does not know, and because there is just enough of the savage life left in all of us to impel us to kill what we are afraid of or do not understand. This is the system the savage works on.

The work done at Whitby in the department of insects and plants is going to stand as a mile-stone in the work of developing our Exhibitions. It was well done and it attracted and pleased those who were there; they were directed to new subjects and found them pleasing. The children who studied to make these collections found therein a great deal of pleasure. Every object they examined, they found to be essentially beautiful and uniform. If thy collected a thousand clover plants or stems of wheat, they were so much alike that they could hardly be told apart. Everything in nature is made with a set purpose, and for that purpose, and until men interfere with it, it remains in that state, and is beautifully adapted for the work it has to do in nature. The study of nature in our schools will teach our boys and girls that they must know what the soil contains, that certain crops require certain soils; that if a soil is deficient in one constituent, it must be replaced; to teach them that there are beneficial plants and injurious plants, such as our weeds, and that every one has its own nature, to which it must always conform from the time it is a seed until it is a perfect plant. That being the case, it opens the secret that every farmer wants to know—how he is to destroy the different injurious weeds. When we find that the whole of that knowledge of plants can be systematized to one or two simple rules, is not that worth knowing? There are only three different kinds of plants, those that live for one season, those that live for two, and those that live for many. In the case of the one and the two-year plants, all that is necessary is to make sure that they do not ripen their seeds. This knowledge of weeds was taught to the children of Manitoba, and the lands there are being better farmed because the children in the schools were taught to know the thirty common weeds, and to understand their characteristics.

With regard to the third class mentioned, we must bear in mind that all plants eat and drink with the root and leaves, to put it in simple words. As an animal must die if it has no food and drink, so must the plant. If a plant that roots deeply is so treated that its roots are broken off and thrown up to the air to die, that plant must die. Some of these roots burrow down so deeply into the soil that it is impossible to plow down as deeply as they go. In that case, if you prevent those plants having leaves, they must die of starvation. If that is understood by a child at school it will go and teach its father, and the whole Province will get the benefit of the knowledge, just as to-day Manitoba is benefiting because the children in the schools were taught these facts.

In regard to weeds, most farmers recognize that there is a great loss from them every year, but I claim that no weed was ever introduced into Canada that cannot be fought by the farmer without any reference to men who make a specialty of it, and without sending to Guelph or Ottawa, if he notices the simple rules I have given.

The wild animals and wild birds are all worth knowing about. A boy shoots a hawk because it is a hawk. Not many men have taken the trouble to find out that hawks and owls are more beneficial than they are destructive. There are only three varieties that do more harm than good. Give any thoughtless boy or lazy man a gun and he will go out and destroy something because he does not know.

So long as I can remember anything, I have studied the ways of nature and natural things: I have learned to see the perfection in them and that they are made for some set and special purpose. I feel that by studying them I am becoming a stronger character, a better man, and for that reason alone, Out of it grew the Toronto Industrial and the Exhibitions at London and it is worth our while to give our children every chance while there is an opportunity for improving themselves, and they will be better off than we are. There is nothing in the study of natural history that can do any harm to children, but everything to improve them, and if they learn nothing but the kindliness that must come from it, it is worth their learning. The very consideration of animals makes us see that they have a right to be. Considering them makes us unselfish and teaches us to have consideration for them and for other people. Consideration for others is the only definition of a gentleman.

Besides improving their characters, children are taught accuracy and system and method: they get an appreciation of the value of knowledge in itself: they find it is knowledge that makes strong men. The man who is able to sway the world is the man who knows more than others. Your Fairs and institutes are the kindergartens where it is made easy for people to learn. They go and see and hear and come away and talk about what they have seen, and talking means thinking. The people at Whitby were all delighted with what they saw, and at the work done by the Agricultural College and the instructive plots. The farmer who went there learned more perhaps by asking one or two questions than by a month's reading of reports. The discussion here this afternoon showed the keenness and interest of every one of you in making your exhibition as good as any other. Local circumstances that must be considered was one of the questions discussed here this afternoon. If you find that a majority of your Board do not want these things, stick to your old way for a time, but never give up, and try to make your influence felt, and in time they will try it. So far as the children are concerned, there is no part of their education that will have a better effect upon their lives.

Why is it that the farmer sows weed seeds on his land with the ordinary seeds? Because the farmer does not know how to recognize them in the seed he buys. The reason seed merchants sell dirty seed is simply because the farmers do not protest against it. Pay more for your seed and save hundreds of dollars in eradicating the weeds brought in with impure seed. Let us have clean seed and then we shall have clean farms, much more economically worked. Children will be given prizes for identifying weed seeds. Every year many samples of grain containing weed seeds are sent to me, but when I tell you that ten varieties cover all the different kinds of seeds, you will see what a simple thing it is for the farmer to recognize them; but he has not yet learned that it is worth while for him to know the difference, or even that he could tell the difference. To-day it is a very rare thing to get a sample of grain that does not contain weed seeds. The weeds throughout the country will be better known if your children are taught to collect and examine and classify them.

There is now in Canada a great movement in connection with forestry, and the question at once arises, what kind of trees should be planted? For it is certain that it is just as much labor and expense to plan useless varieties as it is trees that are very valuable. In a clump of trees I know of is a black walnut forty years old which will yield a log 20 feet by 18 inches worth $40. Beside it are other trees including elms, birches and Canada balsam,—worth nothing. It is not worth while that people should know what they are about when they undertake work of this kind?

Among the great discoveries made during the past century, two were made that are perhaps the greatest of all. One was the origin of malaria and yellow fever, and the other was how house flies do harm to the human race. These two discoveries proved how far astray we had all been. It was proved that the only way by which these two fevers could be carried from one person to another was by being bitten by a mosquito and that mosquito biting somebody else. When that statement was made five years ago it was hardly believed, but now no one dares deny it. Malaria carries off millions every year and so does yellow fever. If proper safeguards are taken against these mosquitoes, countries that have been considered as the "white man's grave" will be rendered perfectly healthy. Is it not worth while that your children should know and understand these things?

To come home to yourselves; many of you are farmers; you have all lived to see the change of thought in regard to tuberculosis. No man who reads to-day believes that tuberculosis is hereditary. He knows that it is only conveyed by a germ contained in the saliva of the patient's mouth, which is conveyed to the system of the other person either by actual contact or in the shape of dry dust from expectoration. Similarly, typhoid can only be conveyed through the excreta of a person who is suffering from the disease, and we now understand that the house fly is one of the principal factors in carrying this disease. The typhoid germ adheres to the feet of flies that crawl upon infected excreta and in that way is conveyed to food and then into the human system. The remedy is that the excreta must be destroyed, so that the flies cannot carry these germs. The only way in which a person may be infected with typhoid is to take the germ into his system either with food or drink. These are a few of the things that are worth knowing about, and there are hundreds of such things that our boys and girls are going to know.

WHAT THE FAIRS HAVE DONE FOR ONTARIO.

By C. C. James, Deputy Minister of Agriculture.

Mr. Chairman and Gentlemen,—I think I can best discuss this question by referring briefly to the history of our Fairs. In the report lately distributed I have gone into the subject somewhat more minutely than is desirable here.

Where have our Fairs come from? If we go back step by step we may trace them to those somewhat complicated and cumbersome societies organized in the middle ages and known in Europe by the general term of "Philosophical Societies." These societies discussed almost any subject that might at any time occur to an intelligent or inquisitive human being. They discussed various scientific subjects, and at times these scientific subjects had a bearing on the agriculture of the time.

The next step was the organization of societies for the discussion of agricultural subjects pure and simple. The settlement of this Province began in the year 1783. It was in the year 1791 that the Province was separated or cut out from the Province of Quebec. The first Legislature of Upper Canada met from September 17th to October 16th of that year, and twelve days after it adjourned, the first Agricultural Society in this Province was organized. We have had Agricultural Societies ever since. The point I wish to emphasize is that apart from our Legislature, the oldest public organization of any kind in this Province is the Agricultural Society.

What did that Society do? It had two things in view: Firstly, its members met monthly to discuss agricultural questions; secondly, they organized an agricultural library. It did not, in the early years, at least, hold a public exhibition or fair. You will see, therefore, that perhaps a meeting of this kind held by this association is after all going back to first principles.

Following the example of the pioneer society at Newark others were organized elsewhere, though of their work we as yet know very little. These societies spread gradually, until in 1830 the Legislature stepped in for the first time and saw fit to provide for their regulation and to give them encouragement. $800 was set apart for each district society to enable it to hold an exhibition in addition to the work already undertaken. From that time to the present, agricultural Fairs have been held within the Province. The York Agricultural Society was organized in 1830. The first thing it did was to send to the Old Country for seeds and implements for the use of the members. Then they organized plowing matches. The next undertaking was to send one of their enterprising and active members to the State of New York to purchase four bulls for their use. A little later they began to hold Exhibitions of various kinds. They also gave prizes for essays on various agricultural subjects.

Gradually these Fairs spread over the country until in 1845 it was felt that something ought to be done to bring them together in one common centre. In that year representatives of the local associations formed what was known as the Provincial Association. In the autumn of 1846 the first Provincial Fair was held at Toronto. What did that mean to the Province? Ottawa; so that our whole Fair system, including the Provincial Exhibitions, has been the outgrowth of the societies with which you are associated.

The Provincial Association gradually developed and became better organized and out of it came the old Bureau of Agriculture and Arts. That organization undertook the most progressive work of agricultural improvement. For many years it was the representative agricultural association of this Province. It started all our stock registers, initiated the Vetinary College, and somewhat indirectly, the Agricultural College at Guelph. The first movement it made towards this end was the establishment of a course in agriculture at the Toronto University. This was more or less of a failure but attracted attention in that direction—it was the first step.

The next forward step was the appointment of a Commissioner of Agriculture. Agriculture was becoming so important in the Province, and this organization was bringing it so prominently before the people, that it was found necessary to have one of the members of the Government pay special attention to this industry. Accordingly, one of the members of the Government was asked to look after it, and he was called the "Commissioner of Agriculture." Out of this has grown the present portfolio of "Minister of Agriculture," and the present Department of Agriculture. Back to that little society organized in October, 1792, we can trace not only the societies with which you are connected, but all the various agricultural organizations of the present day, including the Department of Agriculture. These movements have played a very important part in the development of the people of the country and in the upbuilding of the wealth of this country.

I have shown you how these lines of work have been developed. We find, however, that as time went on, agricultural societies gradually discontinued the meetings for discussion, the giving of prizes for essays, the importation of live stock and new and improved varieties of grain, and concentrated their whole attention upon the holding of annual Exhibitions. It is a question worthy of serious consideration whether our societies have been wise in this. The result has been that these other movements have been

developed out of association with the agricultural societies. Is a society acting wisely in simply keeping before it one idea—to hold an annual Exhibition? or is the time coming when this ancient and honorable society of agriculturists will bring together some of the old elements which have been allowed to slip away? That is the point to which you have come.

Is it time for us to change our lines of work? Let us look at the matter from a rational standpoint and lay our plans so that the community which the society represents may be benefited. Take wheat as an example. What has been the usual practice in agricultural societies for the last twenty or twenty-five years? A prize is offered, and the boast is that the competition is open to the world—no conditions; no restrictions. Of what benefit is it to your community simply to give a prize for the best wheat that is placed on exhibition? Does the district as a whole derive any benefit for the awarding of that prize? A prize should benefit not only the man who secures it, but also the whole community, and every prize on the list should be examined from that standpoint to see that it fills that condition. The mere offering and awarding of a prize may be of no use whatever to the community. How much wiser or better is the community for it? Here is a big pumpkin that takes a prize; of what benefit to the community is it to award a prize to a person who produced, no matter from where or under what circumstances, the pumpkin that happens to be the largest on exhibition? It is the same with regard to fruit of all kinds. The point I want to make is this: The awarding of that prize ought to carry with it some educational feature, for unless it is going to bring good to the whole community, it is money lost. "The greatest good to the greatest number" should be your motto. There should be no place for freaks at an agricultural competition.

Every five dollars offered in prizes ought to be worth at least $100 as an investment to that section. There is no use in awarding prizes unless you know how the article is produced. Of what benefit is it to have a farmer's wife take a prize for an exhibit of butter or bread? Is it not a waste of money to a large extent? Somebody by knowing some little wrinkle may obtain it, or it may be by chance even, but if at the back of the production of that butter, bread or fruit, or roots and vegetables, there has been put into operation some process, the knowing of which would be a benefit to the community, then I say the public should have a chance to get the benefit of that knowledge. This is a sample suggestion, but it can, it strikes me, be applied along a great many lines. Unless the prize is awarded or competed for so that benefit comes to others than the winner of the prize, the money is not being expended for the public good.

The other point that I want to bring to your attention is this: We have found that certain lines of work that were originally part and parcel of the agricultural societies of this country have been dropped out, and have been taken up by other organizations and made exceedingly successful. Part of the work originally belonging to agricultural societies has of late years been taken up by the Farmers' Institutes. The Farmers' Institute system belongs to you; it is yours naturally and historically; it was part of the original agricultural society, and if you can work it in and use it for your benefit, you are only taking back what was your own.

The development of the Winter Fair at Guelph has worked out other features that properly belongs to the agricultural society. Are there not features there which you could incorporate in your Agricultural Society? The agricultural societies have done a great and important work in building up the country, but everyone will admit that it is necessary to ask ourselves whether we have not worked along the old lines long enough? Have not conditions and times changed? Is not the Province coming into a new set of condi-

tions? Let us recognize this, and arrange our work accordingly, for in no other way may we hope to be successful.

MAJOR MCGILLIVRAY: Ought there to be a closer union between the Farmers' Institute and the Fair Board in order to get back to the original objects of our agricultural societies.

MR. JAMES: I am not prepared to say that the time has come formally and organically to unite them. Perhaps they may come together gradually, more toward a common line of work in connection with all the Farmers' Institute work that ought to be cultivated by all our agricultural societies. We just stop at the critical point in our agricultural societies. What is the use of bringing together all these exhibits unless we can find out how they have been grown and produced and send the people away with the necessary instruction in these matters?

Q.—Then it is to unite the work of the Fairs and the Farmers' Institute? A.—Practically, yes. The Fairs should adopt such Farmers' Institute methods as will add to the interest and educational value of their work.

HON. MR. DRYDEN: You will get the best illustration of that at the Winter Fair at Guelph. That Show does not stop at awarding prizes; the animals are brought on the platform and experts are asked to tell why this and this is so. This work revolutionized our hog product; at least I thought it had, but it seems there are some sections that have not learned yet, for find that a large plant in Ottawa is run on hogs produced in Western Ontario, as they cannot get hogs of the right type in that locality. The time is right at hand when you will have to erect new buildings wherein people may gather together for educational purposes. This is the best kind of attraction you can get. There never was a time in the history of this Province when our thinking men, our wide-awake farmers were hungering and thirsting for information as they are now. You must convince a man that your judgment of his products is correct or he will not believe you, and to do that, the judges must give good reasons for their awards.

HOW TO KEEP A SET OF FAIR BOOKS.

By ALEX. MCFARLANE, OTTERVILLE.

MR. CHAIRMAN AND GENTLEMEN, A few days ago I received a letter from Mr. Creelman saying it was suggested that I take up the subject of "The Keeping of Books by Secretaries," and that I bring along my books to show how I keep them. Also saying that we will put you on programme without saying anything more about it. So you will see that there was only one course for me to pursue, and that was to obey the request, as I did not have the chance of trying to make an excuse that would enable me to get out of it. And as I am willing and anxious to further the interests of our association by doing what I can to help it along, I have penned a few words to show the manner in which I keep my books, that is, the books used in connection with the prizes that are used at the Show. I believe the object of this association is to help one another along in the work of our different agricultural societies, and if one secretary has tried any particular method and finds it to work satisfactory by comparing notes with his brother secretary, they will be able to arrive at a method perhaps of two or three combined that will be of benefit to all concerned. The method that I have adopted is not solely my own. Nor do I know who the originator is, as it was one of the principles in connection with it that were in use when I assumed the office twenty-five years ago. I

do not say either that it is the only perfect system that can be used, as I believe that when a secretary or any other person gets accustomed to any system that he would get along more readily and more easily than if he were to adopt some new one that he was not thoroughly acquainted with from year to year. One object we should have in view is simplicity in our method. By this I mean one that we can understand ourselves and one that can be easily seen into by intending exhibitors, and by having such a method I think that all secretaries present will agree with me, we would have started out in the right direction, and would save ourselves a lot of work and annoyance by having fewer mistakes in the taking of entries. While I might call it our method, by it I also take in the Counties of Norfolk and Oxford, as I believe it is pretty generally used in both counties as aforesaid. And we think it the most simple and most perfect system that can be used. Now the first thing I do is after the prize list is printed is to take a double-ruled ledger of 400 or 500 pages. I cut it to suit the number of classes I have in the prize list, on the same principle as an index to a regular ledger in a set of books. I might just here say that our prize list is got out in classes, and each class is divided into sections. So in cutting the leaves of the entry book I allow for each class a sufficient number of pages to cover the number of sections in said class. I then go to the printing office and take type and print the number of the class on the piece of page that is left after the cutting. This seems to me to be neater than writing them on, and I think it stands the wear better and does not blurr so easily from the use that is made of them at the time of taking entries. This being done, I then write my prize list in using one page for two sections and having each section run from top to bottom. This I think to be a better place than dividing the page the other way and placing the one section at the top and the other in the centre, midway down the page. I also start every class on the right hand side. The great advantage I find in this is that in taking entries the odd numbers of sections are always at the start of the page, the even numbers on the right. I can in a hurry more easily go from one section perhaps twenty points to another more readily and save a considerable amount of time, which we are all aware is valuable on the day of a Fair, particularly to exhibitors, as they do not want to be kept long away from their stock waiting for their entries, more particularly when they have left off making said entries till Show day. The entry book having been arranged, I then have my tickets, that is entry tickets printed. On them I have class, section and number. There is also on said ticket a check with class, section and number, same as on ticket. On the ticket is printed instructions to fasten securely to the article or animal, on the check, to be retained by and presented by exhibitor in claiming articles. They are seldom used, but are of considerable use if any dispute arise as to the ownership of any particular article. Having thus far got along we are now prepared for taking entries. Just here I might add that the same as most societies we have an entry form enclosed in the prize list and the intending exhibitor gives the class, number of section and name of article in sending back for entries. Some exhibitors who had from 50 to 70 or 80 entries just give class and section, as they do not have room to write the name of article. This is all right if they are particular and get the right class and section down. We then take the entry forms and give the different articles an entry by placing the man or lady's name under the same section in which they are to be entered in order as they are applied for. Thus it will be seen that each exhibitor does not get the same number on each article. The tickets are then written out to correspond with the entry, with class, section, and number filled in, and name of article or animal, as is also the check. After having completed my entries, I then prepare for the judges. My judges' books are printed as follows. Supposing it were class one, section one, heavy draught

Class I. Section I.

H. D. Brood Mare

Number of Entries

Number on Entry Ticket	Prize	Remarks.
	[illegible]	

[illegible]

I take the entry book and judges' book and fill in the number of entries made in the entry book in the judges' book, after the words number of entires. This is generally made in lead pencil, as it has to be done in a hurry and is less liable to blot up your book. The judges are then supplied with lead pencil, prize tickets, a prize list and a director to accompany them. I have for a number of years written a request on the inside page of the cover of the judges' book, to the judges and director, to put the name of the owner of the animal under remarks, as well as the number on the entry ticket in its proper column, so that in case an exhibitor has entered the same animal in different places and when exhibiting is not particular in reading his ticket he is liable to get the wrong ticket and therefore the wrong number, which would of course throw the prize in favor of the wrong person. This can be done in regard to stock, as it is an easy matter for the director in charge to find out the name of the owner after the judges have made their award. The judges easily completed their work. And right here I would state that we were fortunate in securing expert judges sent out by the Department of Agriculture, who, I am told, knew how to judge and were able to tell why they judged as they did, and who gave general satisfaction, both to exhibitors and the management. I did not hear the usual cry that such an one rode to the Fair with, or that he was a friend of some one exhibitor and that he would get the prize anyway, but instead each went away, even though he did not secure a coveted prize, he had learned something that would be of value to him in future and was well worth the trouble in trying for. But I have somewhat digressed now to the judges. They having signed their book, I copy into the entry book, placing 1st, 2nd and 3rd opposite the exhibitor's name being credited with same. This being done, I then journalize the prize list with the name of the winners in order, 1st, 2nd and 3rd, with amount of each prize. This is posted up in classes and when done the sum total of all classes is found. I then form an account for each exhibitor, and when finished if the sum total of the exhibitor's accounts agrees with the sum total of the journal, I am happy, and then for my own convenience I have a pass book and place each man's account, that is each man's name, in alphabetical order with the amount due him, and I am prepared for the payment of premiums. Being treasurer as well, I pay by cheque and cash both, to persons living at a distance from the bank I cheque on I generally meet at another Fair and pay in cash, taking receipt in pass book and when finished I have my vouchers in alphabetical order for the auditors. This method I have followed for a number of years and would recommend it to any secretary who would like to have a simple but effective one for use in their Show.

THE WHITBY MODEL FAIR.

By R. R. Mowbray, Kinsale.

Mr. Chairman and Gentlemen, We have held a Fair in Whitby for a number of years, but of lat years the results have been very discouraging. We therefore discussed matters with Messrs. Hodson and Creelman, who made certain suggestions to us. We were afraid to adopt them at first, but came to the conclusion that we could not be any worse off and might be better off. The result was that instead of offering a prize list of $1,600 and then being some $200 behind at the conclusion, we offered $2,500 in prizes and were able to pay one hundred cents on the dollar.

The first question we had to consider was what attractions we should have. One thing that Messrs. Hodson and Creelman suggested was a Woman's Institute tent. This was a great success. The ladies not only from our own county, but from the surrounding counties met there and had a social chat, and the tent became a sort of social meeting place. The School Childrens' Exhibit was also suggested, and this proved very attractive and created a great deal of interest. It included wild flowers and insects and was attractive, not only to the boys and girls, but also to the older people. We offered prizes for the best collection of Canadian weeds, and had about fifty kinds shown. A good many men in this country think they know all about weeds, but I was surprised on asking some of the older men how many kinds they could name to find that most could not call from memory more than a dozen or fifteen. When we produced fifty varieties they were surprised, not thinking we had as many. We have so much faith in the exhibit that this present winter we have visited all the schools in South Ontario, taking samples of the exhibit to every school. These we exhibited to the parents and children, and talked to them on the subject of nature study. Next year, instead of four or five exhibits, we shall have fifteen or twenty. The result will be not only in the education the children obtain in making the collections, but it will also attract visitors to the Fair. My little girl is eleven years of age and there is scarcely a common flower which she cannot name as a result of this work.

What about the rest of our attractions: I am free to confess that we did not have enough last year. Our Fair is not perfect, far from it. Previous to making our change, we had the professional horse race and the fakir. We decided to abolish these things, and not a single man or woman found any fault. The best people said, "You are on the right track; go on." That gave us considerable encouragement. I am not here to say that you shall not speed your horses. I think the time is coming when we should encourage the breeding of fast horses and of good driving horses. It is a thing that will be of great benefit to the farmers. We say that our Fair was a decided success, not that we made as much money as we should like to have made, but we are satisfied that we are on the right lines and have the sympathy of the public with us.

We intend to make our Fair a model Fair. We are satisfied that if we continue to work along the line we have commenced we can make a grand success.

You will ask how we got the money to pay the prizes. The Vice-President and myself visited the township councils and laid our case before them and asked for their assistance. We tried to show them that it was in the interest of the municipality to assist us, pointing out, among other reasons, that we were offering prizes to the schools in South Ontario. As a result we obtained from this source $275 for prize money, which we decided to give to the children's work.

We are going to ask the municipal councils for grants again this year. Last year the councils gave it with a great deal of hesitancy. I believe that this year they will give us more, and if so we shall be able to increase the prize list still further. I would urge you to go home and commence work on this line, and will guarantee that the boys and girls will be so attracted that they will take hold of it and do much to make your Fair a success.

Q.—Is the prize awarded to the school or to the individual?

MR. MOWBRAY: To the school; the teacher is awarded twenty-five per cent. and the balance goes to the pupils. You can arrange that for yourselves.

Q.—What Government grant do you get?

MR. MOWBRAY: The Government did not give us any extra grant, but the township societies united with us. This made available the total grant of $800. In addition to this we had the municipal grants, amounting to $275.

Q.—Did you get $800 from the Government the year before last?

MR. MOWBRAY: Yes.

Q.—How much did you pay for attractions that year?

MR. MOWBRAY: About $500.

MR. HODSON: There seems to be an idea with many that the Government held the Whitby Model Fair. That is not the case. These people did not receive any more money last year than they had received for twenty years. All we did was to aid them with our advice.

MR. MOWBRAY: Some twelve years ago we concluded that we were holding too many Fairs and we arranged with the townships to amalgamate with the county to hold one Fair. That is the way we got the $800.

THE CARLETON COUNTY MODEL FAIR.

By H. B. COWAN, OTTAWA.

MR. CHAIRMAN AND GENTLEMEN,—When three years ago Mr. Hodson began to talk about doing away with horse racing at Fairs, there were many who thought he was going a little too far. I think that perhaps I was among the number, but since then the more directors I have talked to, the more convinced I have become that Mr. Hodson was simply half a dozen years ahead of us.

I am convinced that perhaps the chief element in the success of a fair is to have a good secretary. If you have a good secretary you will have a fairly good fair, no matter what features you may have. The trouble about special attractions is that sooner or later they will ruin the educational part of any fair. They grow so insiduously that you do not notice their effects. You start with a few races and gradually they grow to be the leading feature. I have visited all the Fairs in Eastern Ontario for two or three years and I can say that almost without exception the Fairs where they have horse racing have very little in the way of buildings and very little accommodation for stock. They exist merely in the interest of horse racing and special attractions. In the Eastern States the Fairs have degenerated to such an extent that people say they have no use for them. It would have been a good thing for the New England States if they had had a man like Mr. Hodson there twelve years ago. If you examined a few of the prize lists you would discover that one Fair gives 62 prizes amounting to $792 for trotting

races. I found that 48 societies gave combined not less than $20,763, and that 36 societies gave $21,522 in prizes for trotting races. The papers are now taking the matter up and there is an agitation to stop the evil.

Turning to our own Province, at the Carleton Fair, with which I am particularly acquainted, they had been holding horse races for many years and had been slowly losing ground. Finally, we adopted the model prize list, and added a lot of special features, endeavoring to make the Fair as educational as possible. Among these features we had on exhibition the desirable type of animal contrasted with the undesirable type. In the case of hogs, we obtained our exhibit from Matthews, the pork packers. In each case we had a description of the exhibit printed and tacked up. We did the same with poultry. Then we had a model kitchen, with addresses by Miss Livingstone on domestic science. The stores of Ottawa supplied the furnishings, because it was a good advertisement for them. This was a very attractive exhibit.

Our athletic contests, which I described last year, again proved one of our most attractive features. We also gave prizes for the best decorated van load of children. Next year we shall give a prize to the van load of children that can sing the best.

In some respects the Fair was not a success. For instance, we advertised an address at a certain hour on the proper type of dairy cow, but when the lecture came off there were not half a dozen present, and on several occasions when we wanted people to be at a certain place they were not there. But, taken as a whole, the Fair was a decided success, the gate receipts being $200 ahead of the average for the past five years, and on the first day of the Fair it rained all morning. I am satisfied that by another year, by adding a few more attractive features and making other improvements which suggest themselves as a result of our experience, we shall have the society on its feet.

SOME IMPROVEMENTS IN OUR FALL FAIRS.

By F. W. Hodson, Ottawa.

Mr. Chairman and Gentlemen,—The question of how we are to improve our Fairs resolves itself after all into a "human question," that is to say, if we can improve our secretaries and officers and the members of the board, it must result in the improvement of the Fairs. The first step towards improvement will be found in observing the injunction "Take heed how ye hear." Let us remember that we come here not to criticize and find fault, but to learn from each other. Do not let any of us go away with the idea that we know too much; I have thought that several times and have been humbled for it. Just as soon as we get the idea that we have nothing to learn, we cease to grow.

We have heard a good deal about horse racing. I want to put myself on record that I have no objections to a horse race when it is conducted as a horse race and as a racing meet, but I would never consent to a horse race being held at a Fair that I had anything to do with. Horse racing will ruin a Fair sooner or later. I have seen it everywhere. If the South Ontario people had left horse racing alone they would have had just as good a Fair to-day as Simcoe has. It is true that you will secure larger gate receipts for the first few years, but all the time you are losing the influence of the

people whose influence is worth something; there is no doubt about that. If you want a horse race, hold it at another time of the year, and not in conjunction with your Fair.

To return to the subject of the improvement of the Fair. I said that the first essential is to improve the executive. Do not make a man President if he is not capable of filling the position, simply because he has been with you for a long time; you are simply showing the people that you have an incompetent man as President. Elect men who are capable and energetic, and willing to give a little of their time, attention and brains to the work, and who are not anxious for the position because they assume that some little honor or notoriety goes with it.

When you have secured a working board, then see that each member of it has some special work to do. I would have every Fair under a commission, one director to look after each division, and all under the control of the secretary, who would act as managing director. I should be very careful how I chose my board. Choose men of enthusiasm in each department and make each man responsible for the work in his department.

Then, I would make the directors canvassing agents in their respective townships, and I would pay them something for it. You cannot get good service unless you pay for it.

It is a very bad plan to elect your secretary each year. Choose your secretary and keep him in office during pleasure; but see that he is the right man before you select him, and then pay him decently. You cannot expect a man to act as secretary of your Fair without pay. You must have a man in charge of the work all the time if it is to be a success. Let him have an office somewhere and devote a certain portion of his time to it. One of the reasons why our Fairs have deteriorated is that there have been too many people partially responsible for the work and no one really responsible. As the Fair develops, the secretary's pay ought to develop. There is not a county in this Province that could not well and profitably afford to pay a good man for this work. Remember that in order to make a success the work for next year's Fair should commence immediately after the close of this one. That is one reason why you want a secretary working continuously.

As I have said, I would make the directors canvassing agents. They should make their returns to the secretary monthly. This is not too much work; it is done in the Farmers' Institutes.

It has been said that I am not in sympathy with the township Fairs, and that I want many of them cut off. That is not true. But I am in favor of developing the Fairs and making them good and worthy. There is not a Fair in this country, however small it may be, that I should not like to see developed. I would not cut off one anywhere where they are doing good work; but it is folly to go on year after year giving money to an association that has no Fair. I know of one association that has pretended to hold a Fair for years, and all they had last year was one bull, a sheep and a goat.

There is a great deal of discussion at the present time regarding agricultural education in the public schools. I know of no better way for stimulating a desire for knowledge of these things among the children than by getting them interested in the study of nature involved in collections of plants and insects made for the Fair. We have drawn up a complete set of regulations to govern this work, and copies may be obtained on application either to Mr. Creelman or myself. I have been working at this for years and obtained ideas from Europe and elsewhere. Twenty-five per cent. of the prize money goes to the teacher, and they are entitled to it, for none of our teachers are paid too much. The rest of the money is equally divided by the teacher among the children who have collected or put up the exhibit.

Another very attractive feature for Fairs is athletic sports. Get the High Schools to hold their annual athletic sports at the Fair. If you succeed in pitting one school against another it will still further add to the interest taken in these contests.

A Gymkana is another thing that might be successfully introduced. This is simply Caledonian games on horseback. Our people do not ride enough, and we are losing money because we do not know the right class of horse to raise for riding purposes. There is a market in Great Britain for such horses. Our horses are not properly broken to the saddle.

If prizes were offered for farm teams, it would encourage the farmers to keep and groom their teams properly.

Great care should be exercised in the selection of judges, if your Fair is to be a success. The judge should know the requirements of the trade and be able to tell people what those requirements are. Hold a public meeting on the evening of the Fair and let these judges tell the people what these requirements are. I think that a standard of excellence should be established for judging purposes. Let us find out what the requirements are as regards horses, cattle, sheep and swine, and judge according to that standard. This is necessary if there is to be any uniformity in judging. The poultry men worked this out some years ago, and it worked wonders in poultry. The associations representing the breeds should draw up these standards. The English people have recognized this principle. I know of one instance in the case of Shropshire sheep where the same judge was kept for fourteen or fifteen years judging at the Fairs. This has brought the Shropshires to the front more than any other breed. We must keep away from fancy judging and the fashionable type. Fancy judging nearly ruined the Ayrshire and Jersey breeds, and Shorthorns, too, have been injured to a certain extent. We hear of men who want to buy a car load of bulls all straight reds. Shorthorns are red, white and roan, and when he is a good one, he should go to the front, no matter what his color is. In Australia a standard of excellence is being employed in judging.

THE WORK OF EXPERT JUDGES IN THE OTTAWA VALLEY.

By H. B. Cowan, Ottawa.

We have a circuit of Fairs in the Ottawa Valley: it includes nothing but county fairs and they are arranged in regular order. This year they left the setting of the dates of their Fairs to a committee. That committee arranged the dates of thirteen Fairs. By this means the judges were enabled to go from one county to another without any loss of time or money. The expert judges were given a greater success than the year before. I wrote to ask the secretaries if the entries had increased as a result. The almost unanimous reply was that there had been a large increase since the adoption of this system. One secretary wrote, "Entries have increased twenty-five per cent. in the last two years." Another wrote: "I have not heard any complaints in two years judging." I have a number of other letters all bearing out these statements.

The work accomplished has shown us the absolute need of the Fairs of the Province having a capable superintendent, who can give almost his entire time to the work.

Something should be done to get over the difficulty of rainy days. A great many societies are afraid to move in case they get a rainy day and thus get a set-back. I think it would be practicable for the Superintendent to arrange a system of insurance against these. A little money might be reserved to help such societies as are unfortunate in this respect. Another thing, the Superintendent of Fairs might collect the market reports gathered by our agents in Great Britain and place them in the hands of the secretaries of agricultural societies.

DISCUSSION BY EXPERT JUDGES.

By Geo. Gray, Newcastle.

I acted as judge at nine or ten county Shows in the Ottawa Valley. I was told that I should be expected to give reason for my awards. The bills and newspapers announced that the judging was to be done by experts from a distance and that the public were expected to ask questions as to the reasons for the awards. I think if that system were adopted all over the country the judging would be well done. Before I started judging I asked the director in charge to announce that if anyone was dissatisfied with the awards to ask me and I would give explanations. If I found two animals very near alike, I would talk to the man to whom I intended to give the second prize and explain to him why it was that I was going to place his animal second, and I found this very satisfactory.

I recommended each society a year ago to strike crossbred general-purpose stallions from the prize lists. They are a nuisance and a loss, being of no distinctive breeding and of all colors. I found this year that my suggestion had been generally complied with.

J. M. Gardhouse, Weston: Last year I was invited to go out and do a little judging. We met with very hard work. The greatest trouble I had to contend with was the fact that a number of societies take entries up to the time of commencing the judging. The result is that the work is very much delayed and where the entries are numerous it is almost impossible to get through in time.

It is often said that exhibitors are kickers and fault-finders. I have considerable sympathy with the exhibitor. Too frequently, a man, after spending considerable money on a good animal, and much money and time fitting it up, finds that it is to be judged by a man who has never owned or put a dollar into a good animal. It will assuredly add to the success of any Show to have good judges, and if the judges can give their reasons for their awards, it is of great educative value and gives satisfaction to the exhibitors. It is a great thing to have the judges go into a district without knowing the animals or their owners, and if they are competent, they will give satisfaction.

Q.—If you were a breeder of fine-wooled sheep would you be able to judge coarse-wooled?

Mr. Gardhouse: Yes, I think so. If a man understands the type well, the points are pretty nearly the same.

Q.—Have you had any experience in light horses?

Mr. Gardhouse: Not in breeding them.

Q.—Have you ever attended the school of instruction?

Mr. Gardhouse: Only my father's school.

Delegate from Collingwood township: For the benefit of those who have not had expert judges from the Department I should like to say that this year we made a trial of the system and were so well satisfied at the results that next year we have determined to adopt it in all departments.

Moved by REV. C. B. CLARK: That in the opinion of this meeting it is highly desirable that the work of the expert judges be extended to grain, roots and fruit.

MR. GIFFORD seconded the motion, stating that for fruit especially he considered that expert judges were essential.

MR. M. A. JAMES: I think that if we had expert judges for poultry and fruit, in addition to those we have already, it would be ample. The question of expense has to be considered.

MR. SANDERS: I do not think that the item of expense is a very serious objection when we are all agreed that there is nothing that tends more to the success of our Shows than expert judges.

MR. CREELMAN: Five dollars per day per man covers everything. The Department pays the railway expenses, board bill, and wages. We have been sending three men in most instances, competent among them to judge horses, cattle, sheep and swine. I combine them so that these three men will be able to judge in all these classes.

Q.—How do you select your judges, and know that they are competent?

MR. CREELMAN: We select from those recommended by the live stock associations. Each of the associations recommends from ten to thirty judges whom they say are competent to judge at the fairs. We are not quite satisfied with our men yet, and have provided a two weeks' course for judges at the O. A. C. in order that all may be uniform in their judgment.

Q.—How many sets of judges were sent out last year?

MR. CREELMAN: We had five sets of three each last year. We would rather have one judge for each class, but the societies cannot afford it.

MR. HONEY: I do not think that a Clydesdale man is fit to judge Shire or carriage horses. We should have two horse men, two cattle men, a sheep man, and a pig man.

MR. CREELMAN: How many entries do you have in live stock?

MR. HONEY: Nearly four hundred in all—over three hundred head of cattle—Durhams, Polled Angus, Ayrshires, Jerseys, Guernseys and Holsteins. No living man can judge 300 head of six or seven different breeds in one afternoon and do it satisfactorily.

THE PRESIDENT: Our competition is so strong and our classes so many that we have separate judges in almost all classes. We pay these judges ourselves.

Q.—Is the $5 per day just for the time of the Fair or from the time the man leaves home till he returns?

MR CREELMAN: For just as long as the Show wants the man. This is generally for one day only. Mr. Honey is quite right in his remarks. Nothing will hurt our live stock industry more than to put up a man to judge sheep, for instance, who knows nothing about them. I want to say that we will not allow any of our judges to go out and judge something that they do not know anything about. They all have their instructions as to what classes they are to judge. If a judge finds out when he arrives at a fair that the class assigned to him is too large for him to handle, the Fair management must supply someone in addition to assist the three men sent.

MR. GRAY: I contend that a man who is a good judge of Clydesdales is competent to judge any horse; the qualities are the same all the way through.

Mr. Hodson: "The proof of the pudding is the eating." To show that the system gives satisfaction, I may say that in 1901 expert judges were sent to ten Fairs that asked for them; last year judges were sent to fifty-two Fairs. I do not know of a Fair that had them last that does not want them this year. Where they are tried once, they are wanted again. One man judged all the horses at St. John, Prince Edward Island and Halifax and gave perfect satisfaction. We know that Mr. Gray is a good judge in light and heavy horses as well. We know that from experience, and we know that we are safe in sending him anywhere. There has never been any fault found with his judging. There are also a few men who can judge all classes of sheep. These we can send anywhere. In choosing the judges we select those men who fit in together. We recognize that some sheep men cannot judge both long and short wooled. We write and tell the secretaries just what the judges can do and what they must not touch, and the society can govern itself accordingly, and supply any deficiency that may exist. Every Fair in the Northwest Territories but one has adopted this system. We do not ask you to accept these judges; they are there if you want them.

EXPERT JUDGES FROM THE MANAGER'S STANDPOINT.

By M. A. James, Bowmanville.

Mr. Chairman and Gentlemen,—My commission is simply to tell you how we are getting along with the expert judging at our Fair. In the first place I may state that in the past we have had considerable difficulty in obtaining competent judges for live stock, and even when we got them they failed us very often on the day of the Fair. We very gladly, therefore, availed ourselves of the expert judges sent out by the Department. We were so well satisfied with the work they did that at our annual meeting it was unanimously requested that we ask for them again this year. We found that our Fair was too large for three judges, as we had a very large exhibit of horses. I explained that to Mr. Creelman and asked for an additional man to judge heavy horses. He could not at that time accede to our request, but we secured two men whom we knew to be good judges, and they had plenty to do in that department, while the expert sent us had all he could do in judging light horses. The expert judges did their work well, and I have not heard any word of dissatisfaction. Mr. Creelman did everything in his power to make the judges acceptable to us, and in arranging the dates, he did everything possible to oblige us.

Mr. Gifford: The expert judges sent us gave the best of satisfaction last season. The decisions they gave were perfectly satisfactory and we hope to get them again. As to the proposal to appoint expert judges in other departments, I think that fruit is a very important department. It is desirable that this class of product should be judged as carefully as any other class. We export large quantities of fruit and the fruit men should know just what is best and how to produce it.

Mr. Mitchell: We have had the one judge system in operation for a number of years and have found it a great success. I am convinced that an expert judge for fruit and poultry is very desirable. The poultry exhibitors are very enthusiastic for that kind of judging.

THE RELATION OF HORTICULTURAL SOCIETIES TO OUR FALL FAIRS.

By T. H. Race, Mitchell.

Mr. Chairman and Gentlemen, It has been well said that "It is the quality of its men and women that makes a country great," and it is no less true that it is the education of these men and women that helps to make a country great. We enjoy many privileges, in the matter of education, and it is one of our duties to remember those who are coming after us and on whom the future of our country will depend. The highest aim and the highest purpose of the fall Fair is Education. Every means that can be employed to encourage that feature is worthy of our best efforts. The next object to be kept in view by those managing our Fairs is to make them attractive. If you wish to teach people you must first induce them to attend. Any attraction that will bring the people there is worthy of attention. The third consideration should be to make the best possible use of the educative features that are provided.

I have been largely interested in fruit. A few years ago it was my privilege to judge at one of the State Fairs in the Western States. In conversation with some of the managers I was told that we people in Ontario were very conservative in some things; they said they had attended some of our Fairs and were surprised to find that our fruit exhibits were barred from the public with "hands off" placards, wire netting and rails. We think, they said, that this is defeating the object of the Fairs, and that visitors should be allowed to handle and examine the exhibits. I have been closely associated with the Western Fair for some years, and I think we have there the best arranged horticultural exhibit that can be found anywhere in the Province. The fruit is displayed on small tables extending across the hall and the people are allowed to handle it and ask all the questions they like concerning it. One serious mistake made by our fall fairs is the two-day system, where you have the judging done the first afternoon and the next day people are supposed to get their education. The people walk around the tables and see fruit labelled "first" and "second prize." What education can a man get from a card? He must know what elements were considered in arriving at these conclusions. I contend that the people should be present while the judging is going on, so that they may see what the judge is doing and be able to ask questions. I like to have the people round about me when I am judging. It should be the same with the inside exhibits as it is with the outside. The directors often like to be present when I am judging to see me handle the apples. If it is good for the directors it is good for the public.

Q.—Don't the people eat or spoil the fruit?

Mr. Race: No; we never lose any fruit; and supposing we did? That fruit was there for a purpose, and when it has served its purpose as an exhibit, let the people look at it, handle it and keep it. In judging I use my knife if I believe there is anything wrong with an apple, I cut it open. When I come across a man who has gone into his neighbor's orchards and taken samples of the fruit, I am always very suspicious that there is a defect and cut those apples open, which prevents their being exhibited anywhere else.

I was judging at Collingwood last fall. They had adopted a new departure, giving a special prize for barreling apples. Instead of examining the barrels in public as I should like to have done, I was required to examine

them privately. This examination should have been made before the whole crowd. The directors should have let the people in to see me dump out the apples and to ask all the questions they like and understand why I made the awards. I want to impress upon you,—take that wire netting down, remove the rails, take away the "hands off" cards and let the people get right at the exhibits and have your judge there to explain his work. You want to see a judge's work, not the results of his work; you must see the work itself. What is true of fruit is also true of flowers.

Now, as to the attractions that are necessary to get the people out. They must have an interest in the attractions themselves, and therefore I advocate interesting the young folks. Nothing will attract the children so much as nature study. I believe that horticultural societies should distribute seeds, bulbs and roots to the school children, and these children should be invited to make an exhibit at the Fair.

As regards expert judges, there is no article of consumption that people are getting more particular about than fruit, and I think it would be appreciated if judges in this department were provided. I should like to have an opportunity of cutting down your prize lists. At one Fair I visited they offered a prize for the largest collection of fruit of any variety or quality or kind. In offering prizes for collections, you should designate the kind of a collection. You should say "household" or "family collections." A collection of apples is, as a rule, for the use of the household, and the exhibit should start with the first varieties that come in and continue to the end of the season, so that the whole season may be covered. The display then has some educative value and give information as to the best variety to procure at any given period.

DISTRIBUTION OF THE GOVERNMENT GRANT TO DISTRICT AND TOWNSHIP SOCIETIES.

Moved by Mr. Sanders, seconded by Mr. Gifford, "That in the opinion of this Association the time has arrived when in the interests of our annual fairs a memorial should be presented by this Association to the Legislative Assembly, asking that body to put the apportionment of the Government grant on a more satisfactory basis."

Mr. Sanders: Last year I introduced a similar resolution, but at the solicitation of the President it was withdrawn. I want to ask you to-day to reconsider the matter, especially as I have heard no report from this body as to what action was taken. In discussing this motion last year I pointed out that I had not the faintest idea of being arbitrary, nor that I had any wish to divide the society on the subject, but I consider that we are here for an interchange of views. Mr. Metcalfe submitted a resolution last year that was a compromise. It asked the Minister of Agriculture to investigate the whole subject and take steps to remedy any defects that might be found to exist. Mr. James asked us to help the Department work out the difficulties in this matter. The basis of division as it stands to-day was made when the conditions and all our surroundings were so totally different to what they are to-day that a more suitable and more equitable basis is now necessary. It is known to you that the Electoral Divisions still get the larger portion of the grant. I know of two that get $500 each, and the balance is divided among the township Shows, any one of which, in the case referred to, is better than the district Show. I know of one case where an electoral district

society took in only $4 in gate receipts. We cannot all go to Toronto and London, and I maintain that the township Shows are doing more really good work than are the big Shows. There can be no harm in passing this resolution, as it merely asks that we memorialize the Government. Why should we not appoint a committee from our directors to meet the Minister and the Deputy Minister and lay these matters before them?

A DELEGATE: I think it is far too late in the proceedings to take up the discussion of this matter. It would be easy to vote such a resolution through as there are now more township than district representatives present. I believe it is one of the worst discussions you could bring up for the welfare of the Association. There can be no uniformity of opinion, and for my part I feel that the Government makes a very fair distribution.

A DELEGATE: A motion of such a radical character is quite out of order. There should have been due notice given.

MR. SANDERS: I cannot see any reason why such a motion should raise discord. A resolution was passed last year to bring the matter before the Minister. It has not been done. If your officers have not carried out the resolution of last year, is it not in order to reintroduce the matter?

THE PRESIDENT: Mr. Sanders was a member of the executive committee and we did not hear from him. It was merely an oversight as far as I am concerned. I still think that if this question is brought up this Association might as well never meet again. If it must come up, give a notice of motion for next year and we will come prepared to discuss it.

MR. GIFFORD: The resolution simply asks that the matter be laid before the Government. Let those who feel that they are unfairly dealt with appeal to the Department, as the Department evidently believes that they are dealing fairly with all the societies.

MR. CREELMAN: I think that all parties should be treated fairly in this matter. These gentlemen brought it up last year and it was turned aside, and no doubt they feel they have a right to bring it up this year. At the same time I think they are going about the matter from the wrong point of view, because they are dealing with the case locally and ought to take the matter up with the Department for the sake of their own particular Shows; but they should not take up the time of this meeting either this year or next. I will be no party to allowing the thing to be introduced early on the programme and take up two or three days discussing it as we certainly should do. Let those who have a grievance thresh it out with the Department direct.

A DELEGATE: I cannot see any use in township societies sending delegates if they are not allowed to express their views. A resolution was carried last year but nothing has been done about it.

THE PRESIDENT: If the township societies feel that they are not getting justice let them as township societies go to the Government themselves; not through this Association. The Government will doubtless give careful consideration to their representatives. If you are going to bring it into this Association I think you might as well dissolve and have done with it.

MR. SANDERS: I am willing to have the resolution ruled out of order if you wish.

THE PRESIDENT: I feel bound under the circumstances to declare the motion out of order.

MR. METCALF: I do not think it would be out of order to ask the executive to carry out the instructions given them last year.

MR. CREELMAN: Two or three things have occurred during the meeting that I should like to speak about. I want to say that there has been arranged a short course at the O. A. C. for expert judges and institute workers and any-

body else who wishes to attend. It will be held from the 17th to the 28th of March. If any of you gentlemen who have done some judging would like to equip yourselves better for the work, the course is open to you.

In reference to the rules and regulations discussed and adopted last year, I would say that they are printed in the report sent out. Kindly do not overlook them. A lot of time and work and hard thinking has been put on them. I think the meeting can adopt them just as they are without modification. I want particularly to draw attention to the one that provides for only ten entries for one dollar. I think this has done a great deal this year to weed out the professional exhibitor.

The question of Seed Fairs was discussed last year. A great many delegates wrote me afterwards that they would like to see one in operation. I therefore corresponded with the East York Farmers' Institute and they have agreed to hold their Fair to-morrow, so that any of our delegates who want to see it may do so. There, twenty thousand bushels of clean seed are offered for sale under the auspices of the Farmers' Institute and Agricultural Society of East York.

In reference to the resolution saying that we should appoint expert judges in roots, grain and fruit. These thing are generally judged on the first day; are we to provide these judges for the first day? This would break the circuit as arranged for stock judging.

After some further discussion of the matter the meeting decided that special attention should be given to poultry and fruit, and that if a sufficient number of Fairs requested expert judges in these departments to make a circuit possible, they should be provided.

MR. RACE: Would it not be well to have the report out earlier?

MR. CREELMAN: The report could be out much earlier if you confine it merely to the report of this meeting. The last report contains much information and many items of interest that cannot be procured until later in the season.

MR. RACE: I think all we ask is that the report be out as early as possible.

MR. GIFFORD moved, seconded by Mr. D. F. BURKE, that the proceedings of the meeting be printed and distributed as early as possible.

MR. METCALF: That will leave the matter practically to the discretion of the Superintendent.

The motion was then carried.

It was moved by MR. F. W. HODSON, seconded by MR. METCALF, and carried, "That the secretaries be written to for suggestions for model books and that the same be reported at the next annual meeting."

It was moved by MR. METCALF, seconded by the REV. MR. CLARK, "That the thanks of the meeting be tendered to those who had delivered addresses during the meeting of the Association."

The meeting then adjourned.

FALL FAIR CIRCUITS.

No. 1.—Peter Christie, Manchester (Horses), Sept.3rd-Oct.6th. John Campbell, Woodville (Beef Cattle and Sheep, Sept. 22nd-Oct. 6th. A. C. Hallman, Breslau (Dairy Cattle and Swine), Sept. 22nd-Oct. 6. Wm. R. Elliott, Guelph, (Beef Cattle), Sept. 3rd-12th. Newton Cosh, London (Poultry), Sept. 11th-Oct. 6. Wm. Elliott, Galt (Dairy Cattle, Swine), Sept. 16-18.

Winchester	Sept.	3	Ottawa	Sept.	14-15	Renfrew	Sept. 24
Russell	"	8	Brockville	"	16	Metcalfe	" 25
Newington	"	9	Perth	"	17-18	Richmond	" 29-30
Alexandria	"	10	Lansdowne	"	22	Beachburg	Oct. 2
Vankleek Hill	"	11-12	Almonte	"	23	Chapeau	" 6

No. 2.—Alex. McLean, Carleton Place (Horses), Sept. 16th-Oct. 14th. R. S. Stephenson, Ancaster (Dairy Cattle), Sept. 16th-Oct. 14th. Garnet Thompson, Blenheim, (Beef Cattle and Sheep), Sept. 16th-Oct. 14th.

Oakwood ..... Sept. 16
Frankford ..... " 18
Thresher's Corners ... " 19
Stirling ..... " 23
Picton ..... " 24
Campbellford (Two Judges, Horses) Sept. 25
Shannonville ..... " 26
Marmora ..... " 29
L'Amble ..... " 30
Coe Hill ..... Oct. 1
Ameliasburg ..... Oct. 3
Colborne ..... " 6
Warkworth ..... " 9
Wooler ..... " 9
Norwood ..... " 14

No. 3.—Alex. Smith, Maple Lodge (Beef Cattle and Sheep), Sept. 10th-Oct. 7th. Wm. Jones, Zenda (Dairy Cattle and Swine), Sept. 10th-Oct. 7th.

Aylmer ..... Sept. 10-11
Owen Sound ..... " 17
Orillia ..... " 19
Bobcaygeon ..... " 22
Peterboro' ..... Sept. 23-24
Cobourg ..... " 25
Midland ..... " 29
Barrie ..... " 30
Dundalk ..... Oct. 1
Eversham ..... " 2
Elmvale ..... " 7

No. 4.—T. H. Mason, Straffordville (Dairy Cattle and Swine), Sept. 22nd-Oct. 2nd. E. Jeffs, Bond Head (Horses, Beef Cattle and Sheep), Sept. 22nd-Oct. 2nd.

Rosseau ..... Sept. 22
Huntsville ..... " 23
Stisted ..... " 24
Bracebridge ..... Sept. 25
Sprucedale ..... " 26
Magnetawan ..... " 29
Burk's Falls ..... Sept. 30
Gravenhurst ..... Oct. 1
Utterson ..... " 2

No. 5.—Joseph Wallace, Galt (Dairy Cattle, Sheep and Swine), Sept. 22nd-Oct. 9th. Jas. E. Douglas, Galt (Horses, Beef Cattle), Sept. 22nd-Oct. 9th.

Port Carling ..... Sept. 22
Emsdale ..... " 23
Sundridge ..... " 24
South River ..... " 25
Bruce Mines ..... Sept. 30
Richard's Landing. Oct. 1
Gore Bay ..... " 2
Providence Bay ... " 5
Manitowaning ..... Oct. 7
Little Currant ..... " 8
Kagawong ..... " 9

No. 6.—John Gibson, Denfield (Horses, Sheep and Beef Cattle), Sept. 28th-Oct. 8th. J. W. Clark, Onondaga (Dairy Cattle and Swine), Sept. 28th-Oct. 8th.

Murillo ..... Sept. 22
Port Arthur ..... " 30-1
Laird ..... Oct. 5
Sault Ste. Marie " 6-7
Thessalon ..... Oct. 8

No. 7.—S. B. Fuller, Woodstock (Horses), Sept. 22nd-Oct. 9th. G. B. Hood, Guelph (Beef Cattle), Sept. 22nd-Oct. 9th. M. Cummings, Guelph (Dairy Cattle and Sheep), Sept. 22nd-Oct. 9th. George Grey, Newcastle (Heavy Horses), Oct. 9th. Andrew Whitelaw, Guelph (Dairy Cattle and Sheep), Oct. 9.

Tavistock ..... Sept. 22
Palmerston ..... " 23
Wingham ..... " 25
Tilsonburg ..... Sept. 30
Dunnville ..... Oct. 1
Brantford ..... " 2
Waterdown ..... Oct. 6
Bowmanville ..... " 7
Markham ..... " 9

No. 8.—Dr. H. G. Reed, Georgetown (Horses), Sept. 22nd-Oct. 8th. Andrew Whitelaw, Guelph (Beef Cattle and Sheep), Sept. 22nd-Oct. 8th. R. H. Harding, Thorndale (Dairy Cattle and Swine), Sept. 22nd-Oct. 8th.

Durham ..... Sept. 22
Walkerton ..... " 23-24
Harriston ..... " 25
Wiarton ..... " 29
Listowel ..... Sept. 30
Lucknow ..... Oct. 2
Gorrie ..... " 3
Lion's Head ..... " 6
Stratford ..... Oct. 7
Teeswater ..... " 8

No. 9.—W. F. Kydd, Simcoe (Horses), Sept. 23rd-Oct. 14th. John Gardhouse, Highfield (Beef Cattle and Sheep), Sept. 23rd-Oct. 14th. S. N. Culver, Simcoe (Dairy Cattle and Swine), Sept. 23rd-Oct. 14th.

Petrolea ..... Sept. 23
Wyoming ..... " 25
Essex ..... " 30-1
Wallacetown ..... Oct. 2
Florence ..... Oct. 3
Harrow ..... " 7
Redney ..... " 6
Wallaceburg ..... " 8
Blenheim ..... Oct. 9
Highgate ..... " 13
Grand Valley ..... " 14

No. 10.—Dr. J. Standish, Walkerton (Horses), Sept. 16th-Oct. 14th. J. E. Brethour, Burford (Beef Cattle and Swine), Sept. 16th-Oct. 14th. D. G. Hanmer, Mt. Vernon (Dairy Cattle and Sheep), Sept. 16th-Oct. 14th. A. W. Smith, Maple Lodge, Oct. 7th. Wm. Jones, Zenda, Oct. 7th.

Whitby ..... Sept. 16-17
Ancaster ..... " 23
Cayuga ..... " 30
Fort Erie ..... Oct. 1
Beamsville ..... " 2
Otterville ..... Oct. 3
Onondaga ..... " 6
Burford ..... " 7
Jarvis ..... " 8
Langton ..... Sept. 10
Binbrook ..... " 13
Welland ..... " 14

No. 11.—George Gray, Newcastle (Horses), Sept. 23rd-Oct. 8th. John Jackson, Abbingdon, Sept. 23rd-Oct. 8th. R. S. Brooks, Brantford, Sept. 23rd-Oct. 8th.

Chatham ..... Sept. 23
Strathroy ..... " 24
Berlin ..... " 30
Watford ..... Oct. 2
Brigden ..... " 6
Forest ..... Oct. 7
Alvinston ..... " 8

REPORT OF EXPERT JUDGES WHO PLACED AWARDS ON THE DIFFERENT CLASSES OF LIVE STOCK AT OUR FALL FAIRS IN 1903.

INTRODUCTORY.

By G. C. Creelman, Superintendent.

We have few institutions in this Province older than our agricultural societies, under whose auspices are held annual agricultural exhibitions. The first agricultural society in this Province was organized on the 27th of October, 1783. We have had agricultural societies ever since; hence aside from the Legislature itself the oldest organization of any kind in this Province is the agricultural society. The original functions of this organization consisted of monthly meetings at which agricultural questions were discussed, and libraries were started for the purpose of disseminating knowledge in reference to farming. At this early date nothing was done in reference to holding a fair or exhibition, while at the present time this latter feature is the essential part of the work of the Fair boards.

During all of the last century fall Fairs have been held in different parts of this Province with very little change in general conditions or in management, except in larger places, such as Toronto, Ottawa, and London. Within the last two or three years a marked change may be noticed. Fair boards seem to have taken on new life. The fakir element in many cases has been discontinued, and as good prices for farm products and better methods of farming have come into vogue, many of our fall Fairs have risen to meet the new conditions Eighty per cent. of all products grown on our Canadian farms is fed to live stock, therefore anything which will tend to improve the quality of our horses, cattle, sheep or swine should be warmly welcomed by our people generally. We are, as a people, entirely dependent upon agriculture in the Province of Ontario. The production of live stock is the great industry of our farmers and therefore when the Department of Agriculture took up the work of supplying expert judges for all classes of domestic animals at our fall Fairs a movement was inaugurated which has already shown splendid results. During the season just closed one hundred and fifty-two Fairs were arranged in circuits by the Superintendent of the agricultural societies. The dates were arranged so as to economize the time of the judges and these men, entering the ring at the regular appointed hour, knowing no one and with no axes to grind, have given universal satisfaction.

The principal advantage to be derived from competent judging of live stock is that the young farmers, who are looking about for pure bred animals to improve their herds and flocks, will, if the animals are judged according to their merits, be in a position to select animals of superior quality. On the other hand, where the judging is not well done, many thousands of dollars of injury has been done Canadian live stock by farmers using such animals in their herds as have been given a premium when such animals were not what the highest priced market demanded.

Fair boards are also beginning to realize that in order to attract the best people in the community they must, at the time of their Fairs, exclude from their grounds such side shows and other performances as are vulgar or dishonest. The Fair grounds must be a place where neighbors and acquaintances can meet together and renew former friendships, where the instruction may be obtained of better methods pertaining to farming, where the latest and most improved farm machinery can be seen in operation and where the best products of the farm and garden can be shown to the utmost advantage. It is pleasing to note the general improvement in Ontario of our fall Fairs system.

OTTAWA, BROCKVILLE, PERTH, LANSDOWNE, ALMONTE, RENFREW, METCALFE, RICHMOND, BEACHBURG, CHAPLEAU.

Beef Cattle and Sheep, by John Campbell, Woodville.

OTTAWA EXHIBITION. Where I made the awards in beef breed classes the Shorthorns, only, had more than one exhibitor. That excellent herd owned by Senator Edwards, of Rockland, Ontario, made an appearance in every section and were awarded the large majority of first prizes. Good on foot, beautiful in form, thick in flesh and breedy looking, is the fitting description of each animal in the large exhibit. Senator Drummond's smaller, but very select herd suffered somewhat from the long drive in the intense afternoon heat, in going from the C. P. R. station to the grounds. Here is where the Ottawa management have ample room to add tremendously to the popularity of their Fair. A switch whereby cars could be run up to the Fair grounds would tend largely to make the Ottawa Fair one to which the western stock men would flock in increasing numbers. The killing of Senator Edward's prize-winning calf and the loss of bloom in Senator Drummond's lot, are telling examples of the loss and annoyance to stock men caused by the existing want of proper facilities. And yet with this handicap, Drummond's two-year-old bull was considered worthy of first place in his section, and later was made champion bull in the class.

All told, it was a most excellent show of Shorthorns and the task of placing awards on such good cattle was a pleasing work.

The single herds of Herefords, Galloways and Aberdeen Angus, making a full show in their respective classes, would, because of their general good qualities, be more readily appreciated had they to fight for their winnings.

BROCKVILLE. The day following at Brockville, sheep were first on my list of work allotted. Three breeds were classified, Shropshire, Oxfords and Leicester. The first on the list made a capital show, they showed good breeding and were well fitted up. As a lot, it was the best seen by me outside of the city Fairs, and several of the sheep were good enough for any company. Licesters were out in fair numbers, and, while good in many respects, were not in type or fitting equal to the Shropshire. The Oxfords, of which three flocks were shown, did not equal the other, as they were evidently a starting of flocks on inferior foundations, and in two cases suggestions were thrown out in the way of advising a new start with better females and a good typical sire, and the said suggestions were kindly listened to and the parties expressed their intention of so doing in the near future.

Beef breeds of cattle were represented by one entry. That shows what line of cattle breeding is carried on in Eastern Ontario. Dairying there is everything, so the classes in that section were well filled.

PERTH. Hurrying on to Perth by the night train, having been compelled to leave some of our work unfinished, we found next morning to our astonishment that no judging was to be done that day, although it was the second day of the Fair. That was mistake number one, and number two was the holding of a three days' Fair when the exhibits would scarcely justify spending two days. The changed classification of sheep to "Long wooled grades" and "Short wooled grades" apparently displeased exhibitors, the results being a small and not creditable turnout of sheep.

The beef cattle, Shorthorns and Herefords, were fair in numbers but lacking very much in condition. The majority would, in point of flesh, appear more at home in the dairy classes than posing as beef makers. One aged Shorthorn bull, a Hereford cow and a few of the calves, were pleasing exceptions.

LANSDOWNE. Here we found dairying the all in all industry. Sheep were few in numbers and with the one exception of an exhibit of Shropshires, were inferior in quality from the breeders' point of view. But for the general market as good lambs were out as could be found anywhere in Ontario.

Shorthorns and grade cattle were not numerous and not only lacking in type and form but were altogether too thin to show what they might be able to do as beef producers.

ALMONTE. Here we found an up-to-date county Fair; good grounds, comfortable stabling and well fitted up pens, with a thorough system in management, were the prevailing conditions tending to make the Show a very successful one.

Shorthorns, for the first time since leaving Ottawa, were out in sufficient numbers and of such quality as to make it interesting to exhibitors and spectators. Lively competition in the majority of sections caused the awarding of prizes to be very careful work. Bull calves, of which there were a lot, and heifer calves in more limited numbers, furnished quite an attraction in the show ring.

The sheep also made an interesting show ring, Shropshires easily led in quantity, competition was keen and many of the prizes were not easily won. Oxfords and Leicesters one exhibitor in each class were good, and not hindered by flesh or fitting. The grade ewe class, as at Lansdowne, gave ample proof of the superiority of Leeds and Lanark counties for the production of the highest priced market lambs, for at both said Fairs the grade lambs were remarkably to the front in form and flesh, and would command the top quotations in any of our continental leading markets. The writer could not but notice what a leak is here to be seen in connection with very many of the Eastern Ontario farms which are not benefited by the tread of the "golden hoof."

RENFREW. Here we found a progressive Fair; buildings and pens are being renewed in good style and the management of the Fair open still to some improvement. In some cases better classification to meet the views of exhibitors could be made.

In Shorthorns there was one particularly good exhibit containing an excellent two-year-old bull; another lot was medium, while the third was very poor, although said to be of the "fashionable kind." The Herefords were limited in numbers but fair in quality, and the grades in beef classes were only medium.

Shropshire sheep made the best showing in the sheep section and the grades followed in line. It was rather a small show, considering the good country around, suitable for producing mutton.

METCALFE. A twenty-mile drive south from Ottawa brought us to a lively Fair ground, very much decorated with flags and bunting, and the work of providing good and comfortable housing for stock was still in full progress. In nearly every section the judges had heavy work, indeed in two or three cases there was more than they could possibly do in proper time. The directors in a few instances might have hastened the work by having the animals brought into the rings more quickly, as it is not fair to either judges or exhibitors to have judging prolonged until dusk. Shorthorns at this Fair were well represented by an excellent draft from Senator Edwards' well-known herd, a few other good animals and some very unworthy ones completed the showing.

The sheep, of which there were full exhibits in several classes, made the best appearance seen in our eastern travels after Brockville. Here also Shropshires lead in numbers and quality. Four or five flocks competed. Leicesters and Lincolns made a good impression, with two exhibitors in each

class. Southdowns and Cotswolds—one lot of each—would, for the sake of the breed represented by them, be far better in hidden pastures than advertising what poor care and treatment can do in destroying the skillful work of painstaking breeders.

Richmond. Here two days were given us, which enabled all concerned to take time to discuss the whys and wherefores for awards given. We think it was time profitably spent, as the exhibitors, and other interested spectators, asked for information, and to the best of our ability we pointed out the types and forms which justified our placings. So interested were all concerned that in one case, that of Shorthorn cows, the animals were taken into the ring the following morning, for general consideration. Here allow me to say that I was rather well pleased on finding that my placing of the winners was universally endorsed by everyone, including one much interested reporter, who at first was a little critical. At this Fair, where the classification was very good in the beef breeds of cattle, Shorthorns only put in an appearance. They were good, useful lots as a rule, with a few extra good calves, and some far from being what they should have been, as the lack of flesh destroyed good form to a disheartening degree. It seems that the influence of the prevailing dairy cow tends (to breeders of Shorthorns in Eastern Ontario), to make them accept the lean type as their standard and this is a great mistake, as it is damaging to breed and breeder; the latter must sooner or later learn that the main object in raising the beef animal is to grow beef, and that, not in fits and starts, but day by day and every day. Grades of beef breeds were fair, with the steers the best seen heretofore, yet in that class also was lots of room for improvement.

In the sheep several breeds were represented, but Shropshires were the most numerous and in quality were passable, although they lacked in fitting and finish; more thickness in body with neck and legs shorter and face better wooled would be advisable. Leicesters followed in numbers, and they also would be improved by shortening the leg and deepening the body, and that, particularly, at the hind flank. Cotswolds—one flock out— were a good, useful, typical lot, brought out in good shape. Oxfords and Dorsets, of which there was one exhibit in each class, were medium in condition and average in quality. Grades, short and long wooled classified, ewes only, finished the rings. The showing of beef breeds of cattle and sheep was good, but it was in the eagerness of onlookers to get information that this Fair excelled.

Beachburg. A fifteen mile drive from Cobden, through a country of hills and hollows, which did not promise much for farming, brought us to Beachburg. It was a well attended Fair, with stables, poultry house, pens and buildings generally well built and nicely painted, and the quality of exhibits much better than expected. It came into our minds at once that there was some reason for the interest taken in this Fair, and in fact in many of the Fairs in this circuit; listening to the remarks made here and there we soon learned that the annual offering of a beautiful banner, by the Ottawa Valley Journal, to the Fair scoring the highest number of points accounted for this interest. In making up the points the number, quality and condition of the stock were considered, as well as the grounds and the buildings, and so interested had the people become in the annual contest that some of the officials of one board are often sent to other Fairs to get pointers.

All things considered, the Shorthorns made one of the best showings of the circuit; the bulls were not equal in numbers or quality to those shown at other points, but the females throughout were unusually good, and some imported cows would be strong competition in any ring. Shorthorn grades class gave the largest competition and also the keenest; four herds were in

the ring, and so evenly matched were they that only the uniformity of the first and second prize winners led to their success, while the other two herds were considered equal in merit.

The sheep were light in numbers and not up to a high standard in quality. As usual, throughout this circuit the grades predominated in numbers and furnished the ring with the best animals from the butcher's point of view.

CHAPEAU. Ferrying across the river two miles at Pembroke, and a six-mile drive on Quebec soil brought us to the last Fair on our list. Favored with fine, bright weather, unusually large crowds were present, and on returning to the ferry at an early hour in the evening we found a regular blockade of Ontario horses and carriages all waiting for transportation. The boat took ten or twelve teams and rigs each time, which took an hour for the round trip, and yet at a late hour many had to be content with taking their horses across and leaving their buggies until the following morning. The Quebec people were also present in large numbers and were deeply interested in the judging and explanations given, even their clergymen being attentive listeners. The Fair was said to be the best ever held at Chapeau, and one reason given was that the priest had publicly advised the people to take out all their stock, and then set a good example by showing his own cow. While the stock exhibited would not be considered creditable at a Western Show, yet it is praiseworthy to find such a great improvement in one year.

The Shorthorns and their grades were not numerous, nor was the quality of a high standard; want of flesh and lack of form prevailed and dairy cattle were little, if any, better.

The sheep showed only a few pure bred, and two or three, which had recently been brought from Ontario, showed an outstanding contrast. The grades were better, and in this class the lambs made a good showing, being such as butchers would be willing to pay good prices for. The breeding and condition of live stock is much the same as in Ontario thirty years ago. The sooner the Quebec farmers in the Chapeau district learn how much profit and satisfaction is to be got from the use of pure bred sires, and the keeping of their stock in better condition, the better for their pockets, and the more interesting their lives on the farm will be.

In summing up the work done in the circuit, a few thoughts come to mind, and one is that successful Fairs can be held without horse racing. Another is that Eastern Ontario farmers are missing the most profitable source of income on the farm, in being prejudiced against raising sheep, and they do not realize it. A section of country that can show such excellent grade lambs, fit for any market, and that year after year, has a possibility of profit within it that should not be overlooked. The idea is prevalent that sheep are hurtful to the dairy cow, in spoiling the pastures. My firm opinion is that, as there is a place in every barnyard, and a profitable place at that, for fowl, which pick up much that would be otherwise lost, so, on a large majority of farms east and west, a flock of sheep properly managed, will add more income at less cost than any other industry. Again, the beef-making cattle are not given a fair chance, as a rule, in Eastern Ontario. If beef cattle were given the same care and attention as the dairy cow gets in the eastern part of Ontario, I question if, in ten years, beef-making would not crowd out dairying to a large extent.

Winchester, Russell, Newington, Alexandria, Vankleek Hill, Ottawa, Brockville, Perth, Lansdowne, Almonte, Renfrew, Metcalfe, Richmond, Beachburg, Chapeau.

Horses, by Peter Christie, Manchester.

Winchester. The show of Clyde horses here was poor in quality and few in numbers. The interest in the County of Dundas seemed to be centered in road and carriage horses, of which there was a large number, the majority of which were of good quality. The management here was as nearly perfect as it could be, and the attendance was large.

Russell. The show of heavy horses here was not good, but the road and carriage animals shown were fairly good.

Newington. The heavy horses were only fair and were not plentiful, but the road and carriages classes were well filled with fairly good horses. The management was good.

Vankleek Hill. Percheron and French horses seem to take the lead. There were no Clydes of any account, while the road and carriage classes were filled with animals of fair quality.

Alexandria. Here there were a few Clydes of fairly good quality. The classes of French and Percheron were well filled with good animals. Being a Scotchman myself I was surprised to find my own countrymen paying so much attention to French and Percheron horses, which are of small value compared with the Clydes. I am satisfied that these people would have made double the money if they paid the same attention to Clydes as they are paying to these other breeds. The show of road and carriage horses was also large in numbers and fine in quality.

Perth. The management here was poor. There appears to be two factions and they do not seem to work together; but the show grounds are good and the Fair should be a success under ordinary conditions. A Clydesdale stallion bred near Ashburn and known as Ashburn Hero has made his mark around Perth. Some very good team horses were shown and there was a very good exhibition of road and carriage horses.

Lansdowne. The entries for horses at this place numbered 259, and the quality and condition was unusually good. There were only a few Clydes, the greater number being general purpose, road and carriage horses. A very large number of special prizes were offered for horses. One colt got four prizes, a waste of the society's money, as they should have included the special in the society list given by the donors and saved the society money in other respects. The management was all that could be desired.

Almonte. The show of Clyde and Draft horses here was of superior quality and large in numbers. The road and carriage horses were also good in quality and large in numbers. I saw a great improvement in all the classes since I judged in Almonte two years ago. There appears to be an up-to-date board of management and everything runs smoothly.

Metcalfe. The show of Clydesdale stallions was unusually good, five imported ones came in fine condition and the quality was excellent. In my opinion these horses would have come to the front at our Industrial Exhibition had they been shown. The quality of Clyde mares was not so good. As usual, the general purpose classes were well filled and of fairly good quality. Road and carriage horses were small. The carriage teams and single drivers would be a credit to any show in Canada, as their turnouts were much to be admired and the work of awarding prizes was a difficult matter.

The rules of the society were at fault, a horse receiving no award could be shown in any other class, and inferior horses could keep going from one class to another. I called the attention of the secretary to the matter.

BEACHBURG. Some good imported Clydesdale stallions were shown and a large number of heavy draft horses. The farmers around Beachburg appear to be on the right track in raising large draft horses. General purpose horses were there in large numbers, as about twenty teams came out in one class, a great many being of agricultural type and should have been in the agricultural class. The road and carriage horses came out in numbers. There appears to be a great deal of energy and enterprise in the management here.

RICHMOND. No prizes were offered here for entire horses, as they had a spring stallion show. Some imported mares of good quality were shown, and the Canadian draft classes were well filled with a lot of very valuable animals in each class. The general purpose class was large and of fine quality, the road and carriage classes were well filled.

The management was all that could be desired in every case, and the Show was a good one.

CHAPEAU. Every breed of horses known was shown in large numbers and in good condition. I placed the large draft horses to the front in every class and it appeared to please the exhibitors.

The management say that this Fair was, in every way, the best they have ever had and was a thorough success.

In conclusion I might say that I do think there should be an effort made to get the farmers in the Ottawa Valley to turn their attention to breeding Clyde horses, as they would make double the money out of them. There is far too much attention paid to the road and carriage classes and everyone knows that the horse jobber gets the profit, not the farmer who raises them.

In the general purpose classes I always placed the large horses to the front and explained the reason I did so, as they were the most valuable to any farmer and should be encouraged. The speakers at the Farmers' Institutes should try and impress on the farmers the advantage of raising heavy Clydesdales.

WINCHESTER, RUSSELL, NEWINGTON, ALEXANDRIA, VANKLEEK HILL, ARTHUR.

Beef Cattle and Swine, by Wm. R. Elliott, Guelph.

At the five shows visited by me in the Ottawa Valley District the beef breeds of cattle were not very well represented and of inferior quality. At Newington three animals were shown as beef steers for Mr. Slattery's gold medal; the animals were the most inferior cattle I ever saw offered in the show ring as beef cattle, and in consequence I refused to award them a prize at all. The sheep were not forward in very large numbers, but the quality on the whole was fairly good, especially of Leicesters.

The dairy cattle were out in such large numbers that I was asked to judge the hogs, and at four fairs, viz., Russell, Newington, Alexandria and Vankleek Hill, I judged hogs that were not unloaded from the waggons. It is impossible to judge the hogs, and at four fairs, viz., Russell, Newington, Alexandria and Vankleek Hill, I judged hogs that were not unloaded from the waggons. It is impossible to judge hogs intelligently in the waggon and I advocated to the Fair boards the necessity of having pens. At Vankleek Hill prizes were offered for boars in the grade class, and this seemed to me to be a mistake, as it is never wise to offer a prize for grade sires. Also in the grade cattle a prize was offered for a grade sire.

At Arthur, on Octobr 7th, the beef breeds of cattle were fairly well represented, and on the whole the quality was good.

Brockville, Perth, Arthur.

Dairy Cattle and Swine, by Wm. Elliott, Galt.

Brockville. Here I found one of the best fairs it has ever been my privilege to attend. The officers work well together and are all interested in the progress of their splendid Fair. At no other Fair did I see such marked improvements as at Brockville, sheds for the protection of cattle, sheep and pigs are erected and certainly reflect credit on the management.

I first judged the hogs and found what I considered a splendid exhibit and the animals were well brought out and looked after by their owners. Four different classes were provided for in the prize list, Yorkshires, Tamworths, Berkshires and Chester Whites, also a class for bacon hogs, a large entry being brought out in every instance.

In the Yorkshire class two exhibitors were to the front with very typical representatives of the breed. In this class, as well as in the others, all animals farrowed previous to January 1st were shown together, which is not giving some good animals a chance, owing to difference in age. In my opinion a good classification for most of our local Fairs is:—

Boar over one year.	Sow over one year.
Boar over six months and under one year.	Sow over six months and under one year.
Boar under six months.	Sow under six months.

Also a prize for bacon hogs, pen of three.

Age of animals counted from September 1st.

I made this suggestion to the director in charge and think that will be acted upon in another year.

As I have said, some good entries were brought out in the Yorkshire class. In the section for aged boars, some capital animals were shown, possessing without exception the true bacon type and in splendid condition. Sections under one year were well brought out, the entries being in nice condition and of good type.

The Tamworths were, however, in point of numbers and quality probably a little ahead of the Yorkshires, and good typical animals filled every section. A great improvement is noted in this class. The old razor-back is going the way of his forefathers and in his place we find a true bacon type of hog, fine head, light shoulder, good strong back, well sprung rib and well developed hams, all mounted on feet and legs of unquestionable excellence. The value of this breed for crossing purposes cannot be too highly estimated.

The Berkshires entries were not very numerous, but good, straight, even, pigs were brought out. There were two exhibitors in Chester Whites, the pigs were in nice condition, probably in some cases a little too fat, but as a rule good specimens of the breed.

The dairy cattle were the next in order, and I am safe in saying that outside of our large shows the entries were, in point of numbers, not easily beaten. In the neighborhood of one hundred and seventy-five entries were brought out. One cannot but be impressed with the hold dairying has in that vicinity, when we consider the fact that, although liberal prizes were offered for the different beef breeds, only one representative was there and on its shoulders rested the duty of upholding the honor and glory of those who were conspicuous by their absence.

The competition in the different sections was very close and the decisions were watched with interest by an interested audience. Too little time was allowed for the examination of this part of the stock. Our train was due to

leave at six o'clock, and it was impossible to pass judgment on the different breeds and do them and the judge justice in the time at our disposal.

The Ayrshires were brought out by three exhibitors and well brought out at that, one could not help but be impressed with the special indications of milking qualities of this breed, possessing as they did great constitutions, large, well developed milk veins and evenly balanced udders. It was, however, in the Holstein section that the most competition took place, the honors being about evenly divided between two exhibitors. So close was the competition, that when it came to the herd prize, each exhibitor had to his credit an equal number of first and second prizes. However, with the assistance of Mr. John Campbell, of Woodville, a decision was given, and I think satisfaction as well.

Perth. Our next show was in Perth, but unfortunately the weather was anything but favorable and the show could not be a success financially. In the swine department only some six or eight animals were brought out. At this show as well as Brockville much could be done to improve the classification. Considerable ill-feeling appeared to exist between exhibitors and the officers, owing to the directors insisting that each and every animal shown should be registered, and when a man could not produce a pedigree for each entry he was promptly turned down.

While it is commendable to keep and breed pedigreed animals, it seems to me that the directors were not pursuing the proper course. Many breeders, on account of the expense of registration, say it would not pay them to register their animals for the sake of a two-dollar prize, and as a result leave them at home, when they should and would have been there but for those rules, which in other societies are not enforced.

The dairy cattle at this fair were fairly well brought out, although the exhibitors could greatly improve the appearance of their exhibit by means of a little care and feed. Many of the cattle were not in show condition, scarcely ordinary condition. Apart from this, however, the animals gave every appearance of being good, deep milkers.

Arthur. This was the next in line. The show at this place was good and attendance large, despite the fact that the weather was unfavorable.

The hog exhibit was not all that could be desired. Animals of somewhat inferior type being brought out in many cases. If the exhibitors here would purchase a good, pure bred sire from some reliable breeder, much improvement could be made.

The sheep were a good lot, but the classification was somewhat defective, viz., short wool and long wooled sheep. It is very unsatisfactory work judging with such classifications. The principal breeds shown were Leicesters and Shropshires. The Leicesters were brought out by three exhibitors and were in most cases splendid specimens of the breed.

The short wool sheep were represented by Shropshire and Oxford Downs, the Shropshire winning most of the prizes. They were good, strong sheep, but a little off in type. Here much could be done by using a good pure bred sire of the right type.

Oakwood, Frankford, Thresher's Corners, Stirling, Campbellford, Marmora, L'Amable, Coe Hill, Colborne, Warkworth, Wooler, Norwood.

Dairy Cattle and Swine, by R. S. Stevenson, Ancaster; Garnet Thompson, Blenheim, and Alex. McLean, Carleton Place.

Oakwood. The judges are sorry to report that they were disappointed with this Fair, not from the quality of the exhibits, but from the smallness

of them. This being one of the finest districts in Ontario, there is no other reason to which the smallness of the exhibits could be attributed except to the lack of exertion on the part of the directors. There appeared to be a lack of interest. The stock which was exhibited was good, but the competition was small in nearly every case and the attendance very poor.

FRANKFORD. This was an excellent Fair, both in the numbers and the quality of the exhibits. The management is good and the society have just paid for a very nice ground and intend making improvements next year, in the shape of more pens, etc. The horses were all of the higher classes and strong competition in nearly all of them. The cattle were all of the dairy breeds. There was strong competition in most of the classes and the quality fairly good. The sheep and swine exhibit was good, and strong competition in the different classes. In all there were 2,140 entries and the crowd was all that could be desired.

THRESHER'S CORNERS. This was a good show, both in the exhibits and attendance. The horses were much the same as at Frankford, the cattle very good in all classes and of fair quality, the sheep were unusually good and the swine of rather a high order. In all there were 1,200 entries and a very large attendance, while the management of the Fair is certainly worthy of mention.

STIRLING. This was a fine show, the management was good and a good crowd turned out to see it. The horses were more plentiful than at any previous Fair, but were mostly of the light classes; the cattle made a very good exhibit, some of them of very high class and nearly all of the dairy breeds. The Shorthorns only were few in number and rather poor; the sheep classes were fairly represented, but owing to Picton Fair being on the same day, they were not so plentiful as usual; and this applied to the swine as well. The entries were between 1,200 and 1,300.

CAMPBELLFORD. An excellent fair was held at this place. The management was good, and as the weather was all that could be desired, the gate receipts amounted to $500. The horses were the most numerous and the best in quality of any show we had attended thus far. In cattle there was a fine exhibit, mostly of the dairy breeds, some very choice Ayrshires being shown and some very fine grade cows. The classes of sheep and swine were not as well filled, owing to other Fairs being held in the neighborhood. We were told that this show had got down to a very low ebb, but by selecting a new board they had succeeded in building up a very good show in two years.

MARMORA. The number of entries at this Fair were 1,275, and it was a very creditable Fair, the classes of beef cattle and poultry being exceptionally good. The horses, sheep and swine were only fair, but aside from this the show was a success, as it was well managed, and is, I understand, in good shape financially.

L'AMABLE. This show is a very small affair, and from the appearance of the country it is doubtful if it ever can be otherwise. It might be advisable for L'Amable to amalgamate with some other township and hold a show at Bancroft.

COE HILL. This Fair was much better than the last one we attended and some fairly good stock was shown, particularly in horses. We found that they were offering prizes for grade bulls here and we strongly advised the directors to cut those sections out of their prize list.

COLBORNE. This was an excellent Fair, the management being good and the grounds all that could be desired. The gate receipts were $540 and the entries nearly 2,000. The removal of this Fair from Castleton has, this

year, proved a great success, and Colborne is undoubtedly the proper place for this exhibition.

WARKWORTH. This was a very good exhibition as all classes of stock were well filled, the dairy breeds being unusually good. Two very fine herds of Holsteins and some very fair Shorthorns were shown, and the Jerseys were the best we had seen. The horses were good, some of them unusually so.

One good feature of the show was the fine grounds where it was held, and the management are evidently trying to build up the Fair. A noticeable point in connection with it was that no gambling of any kind was allowed in the grounds, and this is to be commended.

WOOLER. The Fair here is much handicapped for want of a good ground, but we were informed that they hoped to have a new ground next year. The classes of stock were not large and some of it was inferior in quality; the sheep and pigs were fairly good, but the cattle rather poor.

NORWOOD. Although we had to wait a few days for this show, we were amply repaid, as it was a splendid show and would be a credit to a larger place. In horses the classes were very good. In cattle the Shorthorns were much better than any of the other classes, but all sections were well filled and a large herd of Angus cattle was shown. In fact all of the dairy breeds were well represented by several herds of excellent cattle.

One feature of this Fair was an exhibition of weeds, gotten up by the different schools and for which liberal prizes were offered, we understand by the Farmers' Institute. This exhibit was the best in mounting, etc., that we have ever seen and it attracted a great deal of attention, and is undoubtedly of great value from an educational standpoint. Another feature was a prize for the schoolboy cadet corps, and a prize for cavalry horses and mounted infantry.

The directors are to be congratulated and are deserving of the greatest credit, as they have proved that an agricultural show can be made attractive without horse races, as was shown by the enormous crowd that attended this exhibition.

A few improvements that the directors of every show we attended could make at small cost might be mentioned here.

(1) A better system of preparing the judges' books.

(2) To insist upon having all sheep and hogs unloaded and placed in suitable pens for the purpose.

(3) To provide enclosures for the judging of halter horses and all cattle, as at nearly every show we have been hampered by people crowding in on the stock.

(4) To insist upon all stock being on the ground at the proper time, in order that the judges should not have to wait and perhaps have to hurry in order to get through.

WINCHESTER, RUSSELL, NEWINGTON, ALEXANDRIA, VANKLEEK HILL, OAKWOOD, FRANKFORD, THRESHER'S CORNERS, STIRLING, CAMPBELLFORD, MARMORA, L'AMBLE, COE HILL, COLBORNE, WARKWORTH, WOOLER, NORWOOD.

Horses, by Alex. McLean, Carleton Place.

The Fairs which I attended were, as a whole, good. I found some difficulty in getting over all the animals, on account of the way they were brought into the ring. There was a great deal of delay between the numbers in each class, caused by the neglect of exhibitors and directors, and this as a conse-

quence, left me late in getting the work done. One improvement above all others that I would suggest is the necessity for a separate ring for the judging of horses and where none but the judge and exhibitors would be allowed to come inside. I found this carried out at Norwood only, and there it was carried out to the letter.

As to the quality of the stock I found the heavy draft and general purpose horses poorly represented, but the carriage and roadster classes were well attended, in fact no place in Canada that I have visited will you find such quality as is to be found in these counties.

A very bad feature of the average fall Fair is the horse racing element. This should not be allowed and this year it has been conclusively proved that it can be left out without any hurt to the Fair.

It would be a great advantage if more attention was given by the directors to the forming of a good ring for the horse exhibit, in order that the people could see the animals, the judging and the management in general of the horses. This is where the educational part of the work comes in and good results would follow if this were done.

The judges should be very careful not to allow their opinions to be guided by any of the directors or any other person who happens to be with them while the judging is going on. The better way would be to be in the ring entirely alone and then the exhibitors could not blame the judges for being influenced by the opinion of anyone.

AYLMER, OWEN SOUND, ORILLIA, BOBCAYGEON, PETERBORO, COBOURG, MIDLAND, BARRIE, DUNDALK, BURFORD.

Suggested Improvements, by A. W. Smith, Maple Lodge.

In making suggestions for improvement in the classification at local Fairs one has to consider the expense in making necessary changes, but I believe more good, and greater satisfaction could be obtained by a more extended classification in some cases at least, even if the prizes were made so much smaller. It detracts largely, for instance, from the educational value of a class to have Oxford and Southdown sheep classes together as is very commonly done. The judge struggles through classes of that kind, but seldom satisfies himself or anyone else.

I believe the greatest improvement can be made in the management. The directors should have a lot of push, and be prepared to give a little of their time to considering the best interests of the show and to assisting the secretary, and then give their whole time to the Fair on show days. A good live man should be in charge of each department and make things move, as it is very depressing to both the judges and the onlookers when stock comes into the ring without any kind of system. In a few of the places where I judged this year, I noticed some commendable exception, when the whole board of directors seemed to be thoroughly alive to the work, and among the best I would place Cobourg. Peterboro' had a good system but lacked directors to take charge of the rings in live stock, except in horses, which were managed well. Their system is a good one and would make a great improvement in many Fairs. They used a time card, allowing so many minutes to each section and had copies posted all around stabling.

A very great deal of comfort could be added to all concerned, if rings convenient to the stock were provided at all exhibitions, for judging cattle, sheep and pigs, and also for colts and horses shown on line.

Some of the exhibitions I attended show good taste in striving to make their grounds as attractive as possible. Aylmer has done much and has many attractive features, but their stabling and pens are very objectionable. Owen Sound had very unfavorable weather, but should have a good and successful Fair. Only in one place (Peterboro') were we instructed not to give reasons for placing awards. I think this is a mistake of this board, for the reasons a judge can give always seem to be anxiously looked for and if he is competent, surely must be instructive to many.

One feature which pleased and encouraged me much was that the most successful shows I attended were those without any, or in case of the best, one or two of the so-called "special attractions," although they had many features accepted evidently as non-attractive.

AYLMER, OWEN SOUND, ORILLIA, BOBCAYGEON, PETERBORO, COBOURG, MIDLAND, BARRIE, DUNDALK, FEVERSHAM, BURFORD.

Dairy Cattle and Swine, by Wm. Jones, Zenda.

AYLMER. The swine exhibit was very small and as a rule quite inferior as regards quality, not more than one good animal on exhibition. In dairy cattle, the Jerseys and Holsteins were not strong in numbers, but those present were very good animals, of the approved type. Ayrshires were exceptionally strong throughout, especially in the female sections. Grade cattle were also numerous, both in the dairy and the beef breeds and they were particularly good.

OWEN SOUND. The exhibit of swine at this Fair was not large, but, on the whole, very good. Berkshires, Tamworths, and Yorkshires made the show. In the dairy breeds nothing was present but a few Jerseys and Jersey grades, of fair quality.

ORILLIA. The swine exhibit was very poor, both in numbers and in the quality of the exhibit. In some classes I thought it best to withhold the best prizes as I did not consider the exhibit worthy of them. In dairy cattle the Jerseys were about all that were present, although they were out in good numbers and as a rule they were of medium quality. The grade beef cattle were very good and made an excellent exhibit.

BOBCAYGEON. Here the swine exhibit was rather poor and only two dairy cows were present.

PETERBORO'. The exhibit of swine was good but not large in numbers. The dairy cattle, Ayrshires and Holsteins, were very good, as also were the beef grades.

COBOURG. The exhibit of swine here was the best I had seen at any Fair in this circuit. Yorkshires, Tamworths and Berkshires were strong in numbers and of splendid type and were well brought out. The dairy cattle were also strong, Ayrshires, Holsteins and Jerseys were all well represented and of a high standard of perfection. The grade dairy cattle were good.

MIDLAND. The swine exhibit was poor and mostly left in waggons to be judged. The dairy cattle were not well represented, as nothing but some grades were present.

BARRIE. The exhibit of swine at this Fair was very good, especially Berkshires and Tamworths, as some animals of both these breeds were exceptionally fine. Yorkshires were not nearly as good as those competing in the other breeds. The dairy cattle had only two animals present.

DUNDALK. The swine exhibit not large, but a few animals shown that were very fair. The dairy cattle were not out in any quantity, but were fair, and the beef breeds were good.

FEVERSHAM. The exhibit of swine was not large in numbers, but all present were very good, including Berkshires, Tamworths, Yorkshires and Chester Whites. The dairy cattle were not good. In beef breeds only Durhams and Durham grades were present and were very good, both in numbers and quality.

BURFORD. The exhibit of swine here was good, both in numbers and the quality of the exhibits. Yorkshires, Berkshires and Tamworths made a splendid exhibit. Chester Whites and Poland Chinas were only fair. The dairy cattle were also strong in the Jersey and Ayrshire classes, each breed having a large number of good animals present. The Holsteins had only one forward, but the grade cattle were exceptionally strong throughout.

ROSSEAU, HUNTSVILLE, STISTED, BRACEBRIDGE, SPRUCEDALE, MAGNETEWAN, BURK'S FALLS, GRAVENHURST, UTTERSON.

Horses, Cattle, Sheep and Swine, by T. H. Mason, Straffordville, and Ed. Jeffs, Bond Head.

ROSSEAU. The fall Fair was fairly well attended as the day was an unusually fine one. The show in the ring was very neatly arranged and the show of roots and vegetables extremely good particularly was this noticeable in the exhibit of potatoes. The entries in butter were large and the quality of some of the samples very good. I noticed a weedy flavor in some samples, and in fact found a good deal of the butter throughout the district tainted with weeds, no doubt due to allowing the cows to pasture in the woods.

HUNTSVILLE. The Fair was quite a success. There is some very good agricultural land around this town, and the show on the whole was very good. The officers were energetic and capable, but unfortunately the afternoon was very wet, and this made the work of judging the live stock disagreeable and unsatisfactory. The show in the Hall was very good, especially in roots and vegetables. A small quantity of fruit was shown and the quality of apples such as Duchess of Oldenburg, Tetofsky and Wealthy, was very fine. The butter exhibit was good and the prizes very liberal, a large number of specials being contributed by citizens of the district.

In live stock the show of horses was large, some extremely good general purpose horses being exhibited, but the exhibit of cattle was small and inferior, although some of the animals were rather good. The show of sheep was much better than that of the cattle, both in numbers and quality. In hogs the exhibit was small and the quality inferior.

STISTED. The Fair board own their ground and have the use of the town hall. The show on the whole was small, but in the hall there was the usual good show of roots and vegetables, particularly of Swede turnips. The show of horses was comparatively large, and that of cattle small with a few good animals. The sheep made a very fair exhibit in numbers and quality.

BRACEBRIDGE. This was the best Fair on the whole circuit in every way, both in quality and quantity. The show in the hall was very fine, in fact few county Fairs in Southern Ontario could equal the roots and vegetables, and as to potatoes, I think I never saw the equal to the potatoes shown here, as they were superior even to those shown at the Industrial.

In cattle, while the exhibit was not very large, still there were some very good animals shown, especially in the Shorthorns. In sheep the exhibit was very large and quality good. This was especially true of Shropshires, which came out very stro 'g. Mr. Jeffs was particularly pleased with this exhibit. The show of hogs was small and inferior.

Sprucedale. The show here was not very large, as the settlement is newer than many parts of the district. There was the usual good show in the Hall; a fairly good show of sheep, but the cattle showed a great lack of breeding, and the swine exhibit was, as usual, poor. At Magnetawan, one of the oldest settlements in the district, the Fair was poorly supported and the show, on the whole, was poor. There were some good animals shown; the butter was generally poor although there were a few good samples.

Burk's Falls. This Fair was good, active and enthusiastic. The officers were interested in the success of their Fair and the exhibits were well arranged, particularly was this noticeable in the grains, roots and vegetables. The exhibit of butter was exceptionally fine and very liberal prizes were given for it. Altogether it was the finest exhibit of butter that I saw in the north, as there were over fifty samples shown. There were large exhibits of horses, cattle and sheep, and the swine exhibit was rather better than usual.

Gravenhurst. This Fair was, on the whole, disappointing, the managers having confined the exhibition to the immediate neighborhood, thus shutting out many desirable exhibits. The show in the hall was very nice, especially in fruit. A few enthusiasts here are gradually solving the problem of how to grow fruit successfully in Muskoka, and some of the fruit shown would certainly be a credit anywhere. The show of stock was small.

Utterson. Here the fair was very good, coming only second to Bracebridge, in roots and vegetables. There is a cheese factory in this section and the cheese shown was exceptionally good, mellow, creamy and clean flavored. The butter was good, but not a large exhibit. Live stock generally good, especially in horses and sheep. The grounds are too small and rather unsuitable for the purpose.

Alvinston, Bobcaygeon, Dundalk, Feversham.

Horses, by E. W. Charlton, Duncrief.

Alvinston. Here I judged horses, and there was the best display of both light and heavy horses, of any that I have seen this year. The horse ring was unusually well managed and it added much to the comfort and ease of judging, for it it had been otherwise I could not have done the work in less than two days.

Bobcaygeon, Dundalk and Feversham. These shows were poorly managed and not well attended. There were some good, heavy horses at these Fairs, but not many of them, and the light horses were not good at all. It seems to me that it would be better to combine some of these smaller Fairs and make one good one instead of two poor Fairs.

Port Carling, Emsdale, Sundridge, South River, Bruce Mines, Richard's Landing, Gore Bay, Manitowaning, Little Current, Kagawong.

Cattle, Horses, Sheep and Swine, by James Wallace, Galt; James E. Douglas, Galt.

Port Carling. This was a show with between four and five hundred entries, and, considering the locality and the distances to be travelled, had a good attendance, with a great deal of interest taken by the farmers. The potatoes shown were excellent, the turnips on the whole rather inferior, and the other roots and vegetables were good. The grain shown was very fair,

and the peas and beans excellent. The bread, butter and preserved fruit were all very good, but the apples were limited in quantity, although the quality was good. Among the horses there were some good animals, but the bulk of the classes were quite inferior.

After the judging was finished I made a few remarks to the crowd, calling the attention of the management to the advantages gained by paying greater attention to breeding and making use only of well bred sires, and I found that the people seemed interested.

EMSDALE. This Fair was not as well attended as it should have been, but the entries were fairly numerous and exhibits were good, considering the farming capabilities of the township.

SUNDRIDGE. The attendance at this Fair was poor, owing to the fact that some of the farmers had not finished their harvest. The exhibits in the root house were creditable, and the butter especially was very good. From the quantity and quality of the butter shown I should judge that the country around Sundridge is peculiarly adapted for dairying. In the live stock exhibit there were some very good animals, but in many classes there was little and in some classes no competition. We should judge from what we saw in this town that there is a great lack of interest in the fair, which must militate against the future of the society, and the directors seem to be also affected with this apathy. No opportunity was given to make any remarks, but we tried to stir up some enthusiasm among some of the farmers, and especially emphasize the importance of having proper grounds in which to hold the Fair, as this would greatly tend to the advancement of the society.

SOUTH RIVER. This Fair was poorly attended, and the display was meagre, both in live stock and in the root house. The best part of the root house exhibit was the butter and turnips, in both of which there were some fairly good exhibits. No interest was manifested either by the directors or by the public, but we endeavored to impress upon them the desirability of improving their stock and particularly of eliminating from their prize list the prizes for grade bulls. Dissatisfaction with the judging in former years appears to be responsible for a great deal of the disinterestedness at present manifested.

BRUCE MINES. At this show the attendance was large and the exhibition was a success; horses in particular were represented in all classes and the quality was very good. Some grade Durham cows were out, but the dairy cows as a general rule were inferior. Grade animals were well represented and the quality was fair. The sheep and swine were not numerous but were fairly good, but in poultry the competition was keen and some really good birds were out. We tried here to draw the attention of some of the farmers to the desirability of using better sires, especially in the Durham class, and also to improve in their prize list, as the society were offering prizes for every known breed of cattle and this divided their funds and gave encouragement to breeds that are acknowledged not to be profitable.

RICHARD'S LANDING. The agricultural exhibition of St. Joseph's Island was held at Richard's Landing, with a very good attendance. The display in the hall was good, particularly in dairy products, bread, apples, roots and vegetables. The apples were ahead of anything seen so far in Northern Ontario. The island seems to be well adapted to apple culture. The live stock was disappointing in numbers, but the quality was fairly good. In our remarks we drew attention to the great harm done to the dairy interest in allowing scrub sires to run at large on the highways, and also that it would be to the best interest of the show to increase the classes in the stock department, for if there were separate classes for young and old bulls, for

sheep and swine, it would increase the number of entries, and arouse more enthusiasm among the exhibitors.

Gore Bay. The attendance at this Fair was large and taken as a whole the Fair was good. The roots and butter were particularly good and the entries for each numerous. The live stock exhibit was fairly good and the whole Fair was a success, as the society own the best equipped grounds which we had seen thus far.

Providence Bay. The exhibition held here was well attended and the show was good. The sheep were not numerous, but the quality was good; the cattle particularly in Durham grades, were well represented and the quality good. Here as well as in other places which we visited, they are suffering from partiality of judging in former years. The grounds are in a very unsuitable condition, and I recommended a change in this as well as in their prize list.

Manitowaning. At this Fair the attendance was good. We judged the exhibits in the hall the first day, and they were a grand success, in point of entries and general excellence. The roots and fruit were especially good as also was the dairy exhibit. The roots could scarcely be excelled in the older part of Ontario. The following day was most unfortunate for the exhibition of live stock, as the afternoon was a continual downpour of rain. Notwithstanding this the cattle exhibit was good, the sheep were fairly numerous, and in many of the classes of horses they were both numerous and excellent. The show, had it not been for the disagreeable weather, would have been an unqualified success, equal to any we had attended.

Little Current. Unfortunately for the success of the Fair, the day was very wet, so that neither the exhibits nor the attendance was large. The roots were particularly good, although not large in numbers, and the grain was the best we had seen. The cattle were not numerous, but some fairly good ones were there, the sheep were only fair, the pigs few, and, although there were some good colts, the horses were only fair.

The directors, many of whom are energetic men, seem to have the interest of the society at heart and lamented the state of the weather, as they had expected a very good show.

Kagawong. The Fair was held on a very fine day and in consequence the attendance was good. The cattle were fairly good and were numerous, and we saw here the two best Durham bulls that we had seen at any of the Fairs attended, one of them particularly could hardly be excelled. The display of grain was excellent, and the turnips excelled in size anything we had seen. There was, however, only one entry in pigs, and the horses were hardly up to the average either in numbers or quality.

Summary.

In conclusion we would make the following observations. The exhibitions as a whole were well attended, considering the smallness of the villages and the sparsely settled nature of the country. In many departments the whole round of shows might be considered a success. We might especially mention apples, the display of which in no case large or numerous, was in quality excellent, clearly showing that with care, the production of apples may be made a profitable industry, inasmuch as we were informed that the trees bear every year. We should judge that by a proper selection of the varieties a fine winter apple might be produced. The dairy exhibit was in every case comparatively large and the quality was good, the grass of the whole region we visited being fitted to produce a good article of butter and cheese. The island appears to be well adapted for the raising of sheep and

flocks are seen on almost every farm. We set before the farmers on every occasion the desirability of improvement in their flocks, and particularly in using the services of none but thoroughbred sires.

We noticed that the display in all cases of turnips, potatoes, carrots and cabbage were worthy of high commendation, superior indeed to what is exhibited at the Fairs in Old Ontario.

The display of live stock, with a few exceptions, cannot be characterized as either numerous or good, the exceptions being a few fine sheep, two Durham bulls and a large number of fine colts. We were surprised to find the horses in harness so inferior, but were told that whenever a colt of superior appearance reaches the age of four years that the lumbermen pick him up by offering tempting prices.

The smallness of many of the Fairs was due to the dissatisfaction with the judging of former years, a spirit of jealousy being aroused. That in the appointing of home judges members seemed to think that it was the exhibitor who got the prize and not the animal shown. We are pleased to state that we were received with the utmost courtesy, and so far as we could judge, seemed to give satisfaction.

Murillo, Port Arthur, Sault. Ste. Marie, Thessalon.

Cattle, Sheep and Swine, by J. W. Clark, Onondaga.

Murillo. Our first Fair was a one-day show, and as the exhibitors had to come some distance, the exhibits did not get fully in until one o'clock and the judging commenced immediately afterwards. They have a very fair hall, although small, and a good field near by with pens for sheep and swine, and a long row of poles securely fastened to posts near the fence, was where cattle were tied. This gave the visitors an opportunity to see every animal. The classes were well arranged in rotation, which made it easier for the judges to perform their duty.

There was only one class for registered cattle and all breeds had to compete in this class, which made it very difficult for the judges. Had they arranged two classes, one for beef and one for dairy type, better satisfaction could have been given in placing awards. In the grade class the same difficulty arose. The grade classes were out in good numbers, especially the milk cows and yearlings. The sheep and swine were poorly represented, only a few being brought out and the quality nothing extra, as the pigs were short and chunky and far from being the bacon type. The same difficulty arose in swine as in cattle, all breeds competing together.

The system of marking the prizes was not up-to-date, as the judges were requested to take off the entry ticket and mark the "First," "Second" and "Third" prize on that, leaving the animal without anything to denote what class it was competing in.

Fort William and Port Arthur Fairs held at Fort William this year, and as they had no regular grounds in which to hold their show, they were fortunate in securing the skating rink, which answered the purpose well for the dairy exhibits, fine arts, roots and vegetables. The exhibition of roots and vegetables was fine, some of the best specimens I ever saw. We were asked to judge this exhibit and it was no easy task, there being no end of potatoes. One man had an exhibition of eighteen fine potatoes, averag-

ing six inches long by two and one-half across, all grown from one eye and one stem. In turnips there were six Swedes grown by one exhibitor, which averaged twenty-three pounds each and were perfect specimens, and among the cabbage were heads weighing twenty pounds. The exhibit of grain in the sheaf was very attractive and instructive, as also were the different grasses. A prize of $20.00 was offered for the best kept garden and collection of vegetables, and the display in this class was very creditable to the exhibitors.

Unfortunately for the management, the grounds for the stock were some distance from the rink and this made it very inconvenient. The entries were small, although liberal prizes were offered. This was largely due to the fact that the Fair board has no regular exhibition grounds and the exhibitors were not sure of proper accommodation for their stock should the weather be bad. When this difficulty is overcome, larger entries will come in most of the stock classes.

The stock was of fair quality. There were some extra good Berkshire hogs from Rainy River district, and one pair of Tamworths on exhibition were of good quality. The Yorks were more of the Berkshire type, too fat and short. A special prize was given for the best bacon hog. There was only one entry for it, and that pig would weigh nearly three hundred and fifty pounds and the exhibitor was very angry to think that he was not entitled to first prize as a bacon hog. This created some excitement, but when the type of a bacon hog was shown them they could easily see the reasons why this animal was disqualified.

The dairy cattle were only fair, with one or two fairly good Holsteins, but not of the approved dairy type. In the poultry which I was asked to judge were a few very good birds, but on the whole a lot of poor specimens were brought out, and the Fair board would do well in future to offer a special prize for two or three cockerels of the best type for fattening purposes, as this would be an education in breeding the proper types.

We were treated very kindly by the directors and officers and were given a luncheon, where several of the principal exhibitors were asked to express their opinions as to the way we had judged the exhibits. Mr. Hunter said, in his remarks, that he had learned more that day by following the judges around than he had learned in eight years on the farm.

One way the management could improve is to have all entries positively close at a certain time, as this certainly gives better satisfaction, as the exhibits can be judged at once after they are in position.

Sault Ste. Marie. Here they have splendid grounds for holding a first-class show, good accommodation for horses and stock all under cover with feed mangers. The exhibit of beef breeds was unusually good, both in Durhams and Herefords. In the dairy class there was a large entry, but very few first-class cows. The sheep and swine were, as usual, very few in numbers and of poor quality, and owing to the very wet day only a few horses were brought out, a few good ones winning most of the prizes. The cattle ring was surrounded by spectators, anxious to hear the points of merit described. Here I would suggest that the management of each Fair build a platform ten or twelve feet square and two feet high on which a beef animal or a dairy cow could be led and a talk given, describing the points of excellence. The sheep and pigs could be handled in the same way, and this would give everyone a chance to hear and see.

The hall was filled to its utmost capacity with choice fruit and vegetables, the collection of grains, roots, etc., from the adjoining townships made an excellent display that was a credit to any show.

THESSALON. This Fair, unfortunately fell on a very wet day, and the roads being very bad, prevented many from bringing their exhibits out, as the distances are great in that country. However, several exhibitors brought out their stock. The Fair has no regular grounds for holding the show and the stock was shown on the streets, but some of the animals shown were good, particularly several Durham cows. The sheep and swine were few in numbers; the poultry for the most part was good, there being some very fine birds, and the fruit and vegetables were of good quality.

All of the Fairs I have mentioned were conducted without either horse racing or gambling.

MURILLO, PORT ARTHUR, SAULT STE. MARIE, THESSALON.

Horses and Cattle, by J. T. Gibson, Denfield.

MURILLO. We arrived here early in the morning and took a walk for some distance out into the country. We found patches cleared and the farms small but productive, judging from the appearances of the barns. We were told that further out were larger, better farms.

At the Fair in some classes of the horse exhibit we found good, useful horses, but as is the case with most small Fairs, the classes were mixed so that it was difficult for a judge to satisfy himself, much less the exhibitors. We talked classification at every Fair where we found a mixed lot, sometimes turned them down, but the directors usually allowed them to enter under their proper classification.

There were few registered cattle. In Shorthorns and Ayrshires we placed the females, asked the directors to give separate prizes to the bulls, which they promised to do. The grade cattle, mostly of the dairy type, and only ten grade sheep on exhibition. The president and secretary were pushing men and everything ran smoothly.

PORT ARTHUR. This Fair was held this year at Fort William, and, considering the bad weather, was a great success. One of the principal days it rained all day steadily. In the horse classes there were quite a number of entries and some good animals shown, although a little mixed in classification. On account of the grounds being so wet I could not move the horses about as I would have otherwise done, but I did not hear of any kicks made, so I suppose they were fairly well satisfied, for the horse exhibitors generally kick quickly and savagely if there are any mistakes made, and often when there are not.

In the cattle exhibit there were few animals out, owing no doubt to the weather. The exhibits of roots, vegetables, grain and grasses were very good: Potatoes were a very large exhibit, with both size and quality. I think I never saw a better lot of potatoes. One man from Rainy River showed six Swede turnips that averaged over twenty-two pounds each, with very small tops and roots. I have seen larger turnips, but never saw such large turnips with so much quality. The same man had also a very good exhibit of other roots and vegetables, also grain in sheaf and threshed. McKenzie Bros., of Murillo, had an exhibit of over one hundred native grasses, and took most of the prizes in grain.

President Burk is the power behind this show, and if he gets the backing he should from Fort William and Port Arthur it will surely be a big show. A country where they can raise such grasses and roots will produce good stock of all kinds, and if the farmer will put as much push into his part of it as Mr. Burk does in his they will certainly have a good show at the two lake towns.

Sault Ste. Marie. In cattle there were some good animals from the herd of Edwin Batty & Sons of Gore Bay, who got most of the prizes. There was also a herd of Hereford cattle. Grade cattle were a mixed lot between the beef and dairy breeds, few of them had the appearance of being good milkers and not any of them good beef cattle. Sheep were a small exhibit of grades. They evidently want some good registered rams to improve the sheep in this section. Here, as usual, the roots and vegetables were the principal exhibit. One man from Laird township had a township collection of roots, vegetables, grain, fruit, grasses, etc., that would be hard to beat in any township.

President Dawson is a worker, looking after the interests of the Fair in all departments. They have good grounds and buildings, and had the weather been fine there would have been a large attendance.

Thessalon. The exhibit here was not large, as rain again kept away much of the stock and made the attendance poor. There were a few nice Shorthorns from Mr. Diamond's herd. Some fine grade cattle and a few sheep. Horses were but a small exhibit.

Aylmer, Palmerston, Wingham, Tilsonburg, Dunnville, Brantford, Waterdown, Bowmanville, Markham.

Horses, by S. B. Fuller, Woodstock.

Aylmer. This was the first Fair visited. Here the grounds were very superior, with an excellent half-mile track. The directors are a very live up-to-date lot of men, and great crowds were daily and nightly in attendance. Here I found the best assortment of light horses (my department here) of any of the shows at which I judged. The grown horses were better than at other shows and the young stock very extra. The finest brood mares were here, I fancy, of any shows in the country outside of Toronto or London. The breeding classes were very large and fifty-eight colts, all light, of good promise came before me. The light horse department of this show could scarcely be improved on.

Palmerston came next. The grounds were fair and the crowd in attendance good. Here I judged all classes of horses and each and every class was well represented, two hundred horses coming before me in one afternoon.

Wingham followed next in succession. The grounds were splendid, with a half-mile track for horse speeding and it was well patronized, as the racing was plentiful. I judged altogether about one hundred and seventy-five horses of all classes in one afternoon. The horses, especially in the light classes, were fine, the brood mares only fair and the others poor. The directors here are a good lot of men for the position, very enthusiastic and hard working.

Tilsonburg has good grounds and a fair half-mile track. The display of horses in all classes was fine and appeared in great numbers, especially in the carriage classes. Draft horses are not numerous or good in this locality, with a few exceptions. I judged one hundred and eighty-three horses in all, but I notice that they have no agricultural classes, only general purpose. The directors were energetic and the fair good.

Dunnville has large grounds, which could be much improved upon. The day was wet and the attendance only fair. The horses in all classes were inferior, owing no doubt to the prize list not being what it should be. While they give prizes for teams in all classes, they give two classes for "buggy horse." This lets roadster and carriage come in together. Why not have each in a separate class?

BRANTFORD has splendid grounds with good stables. The horses were exceedingly light, but fairly numerous. Here I judged all the horses, but took the halter classes in forenoon. The facilities for judging were excellent and there was a good board of directors. The crowd was disappointing for a place like Brantford.

WATERDOWN had an exceptionally good prize list and a very good display of all classes of horses. The grounds were fair for a small place. The secretary was all that could be desired, and the board of directors were very anxious to make the fair a success. I was surprised that the Fair was so successful and the attendance so large with so many Fairs all around there. In all I judged one hundred and twenty-five horses.

BOWMANVILLE has small grounds, but they are complete. I judged only light horses here, which were of inferior quality, although fairly numerous. The heavy horses were said to be very fine indeed. The management of the Fair might be improved on, as they have no system of calling out the classes, consequently there were always delays, between the classes, and the crowd, which was dense, crowd around the judge so that he cannot see the horses half the time. In consequence of this it took quite as long to judge the rather small class of light horses as it did when I judged all the classes, and then I did not feel satisfied.

The light class says simply "Road or Carriage" all the way down, which brings these two classes together and makes rather a mix-up.

MARKHAM. Here I judged only carriage and general purpose classes and found my duties rather light. The roadster and hackney classes were better filled. The grounds here are very fine, and a very live, hospitable lot of men on the board of directors. There was an immense crowd and everything went off in proper shape. The light horses were not up to the average, but the heavy horses were unusually good. There is no agricultural class, but again the so-called "General Purpose."

A RECOMMENDATION.

This general purpose class should be done away with altogether. At Markham there was only one team in this class, yet there were, in first prizes (three different ones), $30, $15, $10 and $5. This pair, not worth $225, took the whole three prizes, there being no opposition to them. At the nine Fairs I attended not a single general purpose horse over three years came before me, not one was fit for the carriage or saddle, which are two of the requisites in the general purpose horse. The agricultural horse class is all right.

I was surprised to see so few saddle horses exhibited at these Fairs. With the exception of at Brantford and Tillsonburg there was not a saddle horse worth over $100 shown, and at Brantford the prize winners in this class all belonged to one man. With so many well bred stallions in the country this is inexcusable and says very little for the rising generation, who should be encouraged in this most beautiful and beneficial of all horsemanship. It is money in the pocket of every farmer if the horse he wants to sell is educated to the saddle as well as to harness. City people would rather buy direct from the farmer instead of leaving all the education of the saddle horse to the middle man. Indeed, the middle man could afford to pay the farmer or breeder much better prices if the horse was broken to saddle.

Where one judge is expected to take all the classes of horses,—heavy draft, agricultural, general purpose, carriage, roadster, saddle, and the extras, to say nothing of the numerous lady drivers who take up much valuable time it should be made imperative with Fair boards that all halter

horses should be judged in the forenoon. It is too much for one judge to go over from 125 to 200 horses in one afternoon. He can do neither the exhibitors nor himself justice.

TAVISTOCK, PALMERSTON, WINGHAM, TILLSONBURG, DUNNVILLE, BRANTFORD, WATERDOWN, BOWMANVILLE, MARKHAM, COOKSTOWN.

Cattle, Sheep and Swine, by G. B. Hood, Guelph, and M. Cumming, Guelph.

TAVISTOCK. The show of horses at this place was unusually good, particularly in the heavy classes. The beef cattle were good, useful animals, although no animal of any particular merit was shown and there was not the competition in some of the classes there should have been.

The hogs shown were good specimens of the different breeds, although, like the cattle, they were too few in numbers. A few good sheep were on exhibition, but the sheep also were rather conspicuous by their absence. There was a good turnout of people and the show was well conducted, very little of the fakir element being present.

The judges were well received and their services seemd to be appreciated. This Fair, however, should have had two judges in the horse class, the work being too heavy for one man.

PALMERSTON. This show was not equal to Tavistock, but beef cattle were about the same, and no dairy cattle were there at all. The sheep and hogs were few in number, although those shown were of fairly good quality. The inside department was very creditable and the Fair was well conducted.

WINGHAM. Everything considered, this was an exceedingly good show, the display of horses being quite above the average in quality. In Shorthorns the classes were will filled with animals of considerable merit. The grades were a fine lot, just the kind to attract the attention of the butcher.

The sheep and hogs shown were above the average, and the whole display of live stock was a credit to the exhibitors. The directors deserve great credit for the business-like way the show was conducted.

TILLSONBURG. This Fair was quite a success. As usual, the horses took the lead, as about one hundred and ninety appeared before the judge. In cattle there was a large turnout of Holsteins and Ayrshires, the most of them being good representatives of the dairy type. The beef cattle were few in number and poor in quality. Some very good sheep and hogs were on exhibition, although in numbers they were not what they should have been.

There was a very good turnout of people and the directors seemed pleased with the success all round. This show, like Tavistock, should have had the services of another judge on horses, it being quite dark before the judging of horses was finished.

DUNNVILLE. This Fair was not up to the average. The horses were deficient in numbers and quality; the beef cattle were of fair quality but few in numbers. There was a large turnout of people with two bands to supply the music. The fakirs were there in force and the whole management seemed to be lax. The directors, however, thought the turnout would have been better if the day had not been wet.

BRANTFORD. This was a well conducted Fair, and the directors deserve more encouragement than they get from the city people. The display of horses was unusually good, although some of the classes were not well filled. The cattle were deficient in numbers and rather poor in quality, but the sheep and hogs shown were of good quality, although not plentiful. The experimental plots and other specialties failed to attract the crowd and the directors seemed very much discouraged. With their fine grounds and buildings better things should be looked for.

WATERDOWN. This Fair was fairly well conducted, the horses as usual taking the lead. The show of beef cattle was large, but the dairy cattle were inferior. The sheep and hogs were of good quality but few in numbers. The directors say that they are handicapped by there being so many shows in that vicinity.

BOWMANVILLE. This comes quite near to what might be called a "Model Fair." There was no horse racing, no fakirs, and a good turnout of people, who seemed to take an interest in the different exhibits. The display of horses was fair. In the cattle the Shorthorns and grades were well filled with good animals, but the dairy cattle were few in numbers. The exhibit of sheep was particularly good and the judge spent four hours on sheep alone. The hogs were good, useful animals, and a credit to any exhibition. This Fair needed an additional judge on beef cattle and sheep, as the work for the past two years has been too heavy for two judges to get through before six o'clock. Upon the whole this Fair was the cleanest and best conducted in our circuit.

MARKHAM. This Fair was a great success. The directors evidently know how to attract a crowd. The horse exhibit was creditable, the cattle were good, and in the beef cattle, sheep and hogs classes, some very choice animals were shown. The exhibit as a whole did not come up to Bowmanville, in either quantity or numbers. The side attractions at this exhibition seemed to be quite a drawing card.

COOKSTOWN. The live stock at this Fair was above the average in quality. In heavy horses the display of young stock was particularly fine. In beef cattle, sheep and hogs the exhibit was creditable, although some of the classes were not as well filled as they should have been.

The directors seem to be live men, but say they have suffered very much in the past by having wet days for their Fair.

SUMMARY.

In conclusion I would say that a general complaint of the Fair boards was that there were too many shows in their vicinity. At most of the shows there was a good turnout of horses, while the other equally important branches of live stock were deficient in numbers and often badly fitted. The prize list has a good deal to do with this, as the prizes offered for the cattle, sheep and hogs are so small that the average farmer's boy will not take the trouble to fit and bring out the animals. If the Fair boards could see their way clear to increase the prize list they would find more interest taken and a much larger display of what is, after all, the backbone of the farming industry.

DURHAM, WALKERTON, HARRISTON, WIARTON, LISTOWEL, LUCKNOW, GORRIE, LION'S HEAD, STRATFORD, TEESWATER, HIGHGATE, GRAND VALLEY.

Horses, by Dr. H. G. Reed, Georgetown.

DURHAM. This was a good show in most of the classes of horses. Light horses were rather poor, especially in the harness classes. There was very good accommodation for the show, with very energetic officers, and the society seemed to be in good financial condition.

WALKERTON. This Fair was a decided improvement on last year. I was much pleased with the way in which it was conducted, entirely along educa-

tional lines. They had a row of nicely cared for plots showing most of the grasses and grains and this was a drawing card for the crowd. In a tent provided for the purpose, competent ladies addressed the people on the subject of Domestic Science, and those talks seemed to be well received by those present. There was also an expert on the rearing and marketing of chickens, and Mr. McNeill, of Ottawa, demonstrated the packing of fruit. The horse racing was absent, no fakirs of any kind, nor patent medicine vendors, and it was a fairly good, all round show.

HARRISTON. A very good show with the weather all that could be desired, and the crowd good. This society seems to be in good shape financially and is energetic.

WIARTON. The weather here was fine, the grounds good and a large crowd, but the exhibit was rather poor and the Fair in general not as good as some we had seen further south, although the officers did their best with the material they had to work with.

LISTOWEL. An all round good show, both in heavy and light horses, the best I have seen this season so far. The weather was fine and the crowd splendid. The grounds are rather small, for in order to properly accommodate the crowd they would need to be at least twice the size they are. I was much hampered in my work here by the crowd, who however, were good-natured and agreeable.

LUCKNOW. This Fair is something after the pattern of Walkerton, although there were no plots, but there was a tent for demonstrations in cooking, and Mr. Elford demonstrated with chickens. The weather was poor and this somewhat spoiled the Fair.

GORRIE. This was one of the nicest little shows I have seen this season, with enterprising officers and a fairly good, all-round show of horses, fine weather and a good crowd.

LION'S HEAD. Although this show is very much behind the times as to its horse exhibit, I cannot speak too highly of the enterprise and push of its officers, in making such a success of the material they have to work with. There was a large show of horses in all classes, but very few good animals. The grain exhibit was good, the fruit only fair, but the roots excellent. I consider that this society has a promising future in store for it.

STRATFORD. While this is certainly a good show, it was not what I expected to see in a city like Stratford. The grounds were altogether unsuitable, with a hall in the city, removed altogether from the grounds. The weather was as bad as it could be, which reduced the gate receipts, but to make this show a success better grounds are essential.

TEESWATER. This show was not so good as last year, the weather was somewhat unfavorable, which was the only reason the management could assign. They have beautiful grounds and the officers appear to be energetic, even although the show was not what it should have been.

HIGHGATE. There was a fairly good, all-round show of horses, although high class animals were not numerous in the harness classes, but a very promising lot of colts coming on. The adult animals have been bought up by dealers.

GRAND VALLEY. Here we had fine weather and an enormous crowd, and all manner of excitement in the way of horse racing, merry-go-rounds, fakirs and medicine men. The horses were only fair in the light classes, but some better ones in the heavy classes, in which I saw a promising lot of colts. The officers appear to be enterprising, but their ambitions seem to be to attract a crowd.

DURHAM, WALKERTON, HARRISTON, WIARTON, LISTOWEL, LUCKNOW, GORRIE, LION'S HEAD, STRATFORD, TEESWATER.

Beef Cattle and Sheep, by Andrew Whitelaw, Guelph.

In regard to the quality of stock judged by me at the different Fairs in the circuit I am pleased to report that, taking it all in all, it was very creditable. At Walkerton, Harriston and Lucknow the Shorthorns were especially well brought out, in fact many of the animals exhibited would not have disgraced the Toronto Industrial.

At Durham, Wiarton, Listowel and Gorrie the exhibits were not large, but there were some excellent animals among those shown.

In regard to the sheep I found some very good animals, but hardly enough of them, at many of the Fairs there being only one exhibitor in each class. The attendance at the different Fairs by far exceeded my expectations, and it was with pleasure that I noticed the almost entire absence of the fakir element, that has heretofore, lived and grown rich on the hard earned money of visitors attending the Fairs in the days gone by. Let us hope that this element is cut out for all time to come.

DURHAM, WALKERTON, HARRISTON, WIARTON, LISTOWEL, LUCKNOW, GORRIE, LION'S HEAD, STRATFORD, TEESWATER.

Dairy Cattle and Swine, by R. H. Harding, Thorndale.

The dairy cattle exhibit throughout the Counties of Wellington, Huron and Bruce is (generally speaking) a very light exhibit. At Walkerton there were a few good Holsteins and Jerseys, at Stratford there were some good Ayrshires and a few Jerseys, but at nearly all of the other shows I attended there were practically no dairy cattle, that is, belonging to the dairy breeds. The swine exhibits were unusually small, and the only way I can account for it is that the prizes were too small to repay the amount of hard work that is connected with getting animals ready for a show, loaded, etc. In order to get a larger exhibit of hogs at the smaller shows it is necessary to increase the prizes as much as possible. The Yorkshires made the largest exhibits and some very good animals were out, the Tamworths and Chesters being next in the race. Some of the Fairs do not require that the hogs shown be registered and the consequence is that there were some shown that were not very typical of the breed they represented, and should really have been thrown out. In making up the prize lists for another year, care should be taken to have only registered stock compete, for this is the only way to raise the standard of our bacon hog.

PETROLEA, WYOMING, ESSEX, WALLACETOWN, FLORENCE, HARROW, WALLACEBURG, BLENHEIM.

Horses,—Some Suggestions, by W. F. Kydd, Simcoe.

I will only give a few suggestions wherein Fairs in general might be improved.

(1) That judging begin at twelve o'clock.

(2) That a ring be provided in which to judge horses,—posts and a rope would be sufficient.

(3) The weight of animal not to be mentioned in prize list, as weights seem to cause trouble.

(4) Carriage and road horses should not compete against each other.

(5) Secretaries should be careful to put no rule in the prize list when there is a doubt about its being carried out. For example, "No horse shall be awarded a prize unless sound." Had that rule been adhered to in many places on my circuit very few prizes would have been given, and "great men" differ about soundness.

(6) No horse should be allowed to receive more than one prize, for while professionals have a perfect right to exhibit, they should not be allowed to take it all.

(7) When general purpose and agricultural horses are classed together (sometimes there are both classes) it would be better to call it an agricultural class, as this is broader. An agricultural horse may be a general purpose animal, but a general purpose is rarely an agricultural horse.

The quality shown at most of the Fairs was poor. Heavy draft horses were a small exhibit, many of them lacking quality. Agricultural and general purpose classes were filled, and while this is a useful horse, it is not valuable on the market.

PETROLEA, WYOMING, ESSEX, WALLACETOWN, FLORENCE, HARROW, WALLACEBURG, BLENHEIM, HIGHGATE, SIMCOE.

Beef Cattle and Sheep, by John Gardhouse, Highfield.

The new departure in the way of judging live stock at the fall Fairs, as far as I could see, is a decided improvement. Many very good stockmen would be heard to say: "This is what we want, the Fairs should be educational, and then in place of our young men and boys from the farm spending their time around side shows, the place for them is around the judging ring, watching the awards being made and listening to the reasons given." One old gentleman whom I was informed had acted as judge at many county and township Fairs, and who seemed to be a good judge, spent all one forenoon around the cattle ring, listening to the reasons given for making awards, and very often asking questions, as he told me afterwards, just to make it more educational and help interest the people, and this is the very thing desired.

It was quite amusing to hear some of the remarks made by the young men and boys. At Florence I overheard one young man say to another, "Come over here and learn how to judge cattle, I have heard some things I never thought of before." Another remark was, "That was all right, I thought the animal would win, but when he explains the reason I see why the prize was given."

The stock at all the different Fairs were, as a rule, of high standard—that is, in Shorthorn cattle and sheep, the classes which I judged. I think the horses were also good, but as my time was all taken up in judging the beef cattle and sheep, I had not much chance to see them, but I know that Mr. Kydd was kept busy awarding prizes. The dairy cattle and swine were very few in numbers, and in many cases the quality was not up to the standard. Mr. Culver passed judgment on these classes.

At Petrolea and Wyoming the Shorthorns and their grades made a good showing, at Petrolea especially. The sheep were excellent, Lincolns and Leicesters led the way, there being as many as eight or nine in one section, with some good specimens of Shropshires, Oxfords and Southdowns, also a few good Dorsets were shown at Wyoming.

At Essex and Harrow, Shorthorns and their grades outnumbered all others, and they were a good lot, several of them first-class. There were also a few very fine Herefords at both these Fairs, especially at Harrow. The sheep were good, all the breeds being well represented.

At Wallacetown, Highgate and Rodney we had a splendid show. As at the other Fair, the Shorthorns and their grades outnumbered all others. At Wallacetown Shorthorns filled the classes well and there were some good specimens of the breed shown. The grades were good, and there were a lot of unusually good steers brought out. At Highgate I saw the strongest show of cattle on the circuit, I cannot remember exactly the number shown, but think there would be from forty-five to fifty Shorthorns and as many grades. They were certainly a good lot and deserve special mention. There was not one class or section without strong competition. The Fair board should provide a better ring to judge them in, and I understand they have arranged to have one for another year. At Rodney the Shorthorns were very few and not a desirable lot, but they had a few very nice grades, and some splendid steers. The sheep at all three Fairs were good, both in numbers and quality, all the breeds being fairly well represented.

Florence, in Middlesex County, had rather a poor show of Shorthorns, not many in numbers and with the exception of one or two animals they were not a desirable lot. The grades made a fair showing. In sheep the Lincolns and Cotswolds were a very good lot but the other classes were poor.

At Wallaceburg the weather was very unfavorable for a good show. Shorthorns and their grades were only a very moderate lot, both as to numbers and quality. In sheep the Lincolns were very good, but the other breeds were poor.

Blenheim was a very fair show in both cattle and sheep, but not as good as it should have been, considering that it was held in one of the very best townships in the Province, the Township of Harwich.

Simcoe, in Norfolk County, where we finished our judging circuit, is, to my mind, the model fair. The grounds are attractive, the buildings good and nicely kept, the exhibits fine and the directors and offices the right men in the right places, a good president, a good secretary and a good superintendent, with splendid directors to help them. There were no side shows, no horse racing to attract the attention of young men and boys, but lots of interest was taken in the judging of the different classes of live stock.

I might say that I found the officers of most of the Fairs to be men who seemed to be anxious to make their Fairs a success, and always ready to receive any suggestions.

In conclusion I might make a few suggestions.

1st. That the directors of the different Fair boards provide better rings for judging live stock, especially cattle.

2nd. That a more uniform prize list be prepared, especially in sheep, In some cases I found Southdowns and Oxfords, Southdowns and Shropshires, Lincolns and Colswolds, showing together, which of course no man can judge satisfactorily.

3rd. That it would be well not to have the same judges at Fairs closer than twenty miles.

4th. That everything should be on the ground and ready for the judges to commence work at 10 o'clock a.m. at County Fairs, and 12 o'clock at Township Fairs, thus giving judges time to do their work.

5th. That it would much improve the appearance of the sheep and swine pens at some of the Fairs if the weeds and rubbish were cleaned out a day or two before the Fair is to be held.

6th. I would like to see all cattle shown broken to the halter, and I think it would add much to the show.

At Harrow I noticed they had a very nice building on the grounds which was used as a dining hall, built by the society at a cost of from $175 to $200. I should say it was seventy or seventy-five feet long, by about sixteen feet wide, and it was let to the different churches each year, the church paying the society $12. I thought this was one of the best things I had seen at any of the Fairs.

Petrolea, Wyoming, Essex, Wallacetown, Florence, Harrow, Wallaceburg, Blenheim, Highgate, Grand Valley.

Dairy Cattle and Swine, by S. N. Culver, Simcoe.

The Fairs visited by me were in the Counties of Essex, Elgin and Wellington. The class of stock judged, dairy cattle and swine.

Beginning with Petrolea and Wyoming Fairs, the dairy cattle (Jerseys) were few in number with some very good ones, although of course there was the usual inferior animals with lots of room for improvement. The swine were quite numerous, of nearly all classes, but the Berkshires were unusually good, some of them fit to win in any ring.

The next week we visited Essex, Wallacetown and Florence. At these Fairs the dairy cattle were largely Jerseys and some very fine animals among them. At Essex there were several herds of young Ayrshires, aside from the usual number of Jerseys. In the swine at this Fair I found a different class of hog than is usually seen, more of the old style that will eat more of corn for its ration. At Wallacetown there were some very fine Yorkshires that were certainly a credit to the owner.

The following week at Highgate and Grant Valley the cattle were all Durhams, and their high class would do credit to any Fair. At Grand Valley there was one herd composed of several of the Toronto winners and were, of course, good. The different breeds of swine represented at this Fair were Berkshire, Yorkshire and Tamworth, all of good quality.

In conclusion I might recommend that all Fairs have a ring in which to show the different classes of animals, so that the judges may have plenty of room and all visitors can see properly the animals shown.

Whitby, Ancaster, Cayuga, Fort Erie, Beamsville, Otterville, Onondaga, Burford, Jarvis, Langton, Binbrook, Welland, Campbellford.

Horses, by Dr. J. Standish, Walkerton.

The Fairs generally were well attended and a great interest was taken in the horse exhibits. With few exceptions there were good animals presented in every class, notably in the draft class, at Ancaster, Burford, Cayuga, Welland, Binbrook and Langton. In the carriage class at Burford, Welland and Jarvis some of the animals shown were very good, and in the saddle and jumping class Burford presented the strongest competition and the highest class of animals. In roadsters in harness Whitby and Campbellford excelled. I did not judge heavy classes at Whitby, Campbellford or Otterville, but saw some fine horses on the grounds.

The management of the Fairs was generally good, although I think it would be an improvement if the Superintendent and Marshall would not be exhibitors, for at some places, notably Langton, the Marshall had so many exhibits of his own to attend to that it interfered with getting the classes out and delayed until dark, so that one class had to be finished after dusk.

The directors at Burford seemed, one and all, more anxious to make a success of their show than to win prizes themselves, which I believe, largely contributed to the success of the Fair, for the crowd at this place was very large, notwithstanding the fact that it had rained all night and until ten o'clock that day.

In a few places they had an agricultural class and general purpose class, but not a draft class. It seems to me a wiser plan to have a draft class, and if any class has to be left out let it be the general purpose, as a large carriage horse comes nearer taking that place. In a few cases where a very superior animal was presented I drew special attention to it, notably at Welland in the carriage class, also in the draft class at Jarvis the spectators seemed to be well pleased.

I think it would be well to have carriage and road horses presented without a stipulation as to height, also general purpose and agricultural horses without a stipulation as to weight, for very often a good road horse is barred by being fifteen two hands high, and a good carriage horse by being under fifteen two. I think the judge should be left to make the awards in these classes, as a half inch may otherwise throw out a really good animal.

WHITBY, ANCASTER, CAYUGA, FORT ERIE, BEAMSVILLE, OTTERVILLE, ONONDAGA, JARVIS, LANGTON, BINBROOK, WELLAND,

Beef Cattle and Swine, by Jos. E. Brethour, Burford.

WHITBY. This Fair gave a splendid classification of the English breeds of swine and good specimens were shown in the various classes, although the competition was very limited in the breed classes, while in the bacon classes several good hogs were shown and the competition was strong.

The management of this Fair was the best of any Fair attended by me during this season, all pigs being unloaded from the waggons and brought out so that they could be properly inspected by the judge. In this connection I met with a good deal of trouble at all the other Fairs visited. I think the Fair management should insist upon all stock being unloaded and placed so that the public may inspect and compare the various exhibits.

It is also most unfair to the judge to ask him to make awards among animals which he can only secure a faint glimpse of, through a crack or knot-hole in a close waggon box. It is the duty of a judge to refuse to act under such conditions.

ANCASTER. The swine exhibit was mostly made up of Yorkshires, although a few good Berkshires were shown. Competition in Yorkshires was keen and a lot of good pigs were exhibited.

In the beef breeds of cattle, the Durhams were a splendid class and strong competition prevailed through the sections.

Most of the animals were in fine breeding condition. The grades were not as good a class, but a few good ones were shown.

The management was fair, although I had some difficulty in securing the services of a director to see that the animals were called out in the various classes.

CAYUGA. The exhibit of swine was good in quality, but too many were allowed to remain on the waggons, which had a tendency to spoil what would, otherwise, have been a good exhibit.

The beef breeds at this Fair were mostly Shorthorns and their grades. The pure bred Shorthorns were a fine class and mostly brought out in first-class condition. The grades were also good and there was a large exhibit of them, the grade cows deserve special mention, being an extra good lot, the grade steers were also choice and showed evidence of being well graded up with Shorthorn sires.

The management was very fair, and no fault could be found, with the exception of allowing the pigs to remain on the waggons.

Fort Erie. The exhibit of swine was small, only one exhibitor showing pure breds.

The quality of cattle shown was only fair, and the exhibit was small.

This exhibition came near to being a total failure, owing to a downpour of rain, which lasted during the whole day, this no doubt prevented many animals from being brought to the Fair.

It also made it difficult to judge of the management, but it appeared to me that more attention was given to the "Race horse" element of the Fair than to general agriculture.

Beamsville. The exhibit of swine at this Fair was small, and all left in waggons.

The exhibit of beef breeds of cattle was composed of Durhams and Durham grades, the exhibit was very creditable.

The management was very fair.

Otterville. The exhibit of swine was not large, but the animals shown were of fair quality. The exhibit of bacon hogs was the strongest I had met with, and good specimens were shown.

A good class of beef cattle was shown and competition was keen, although most of the animals were only in field condition, Shorthorns were the prevailing type.

The managment of the Fair appeared to be good.

Onondaga. The exhibit of swine at this Fair was exceptionally good, particularly the Berkshires and Yorkshires, and also the bacon hogs.

Beef breeds of cattle were represented by Durhams and Durham grades, which were very good.

The management was only fair.

Jarvis. The exhibit of swine at this Fair was very good, but was not as large as it should be. The animals shown were mostly Berkshires and Yorkshires.

The beef breeds of cattle were not very strong in numbers, but the quality of the animals shown was, on the whole, very good.

The management was very fair. The secretary was good.

Langton. The exhibit of swine was very good, as near as I could judge, but nearly all of the animals were left in the waggons and I could not more than half see them.

The exhibits of beef breeds of cattle was very poor, only a few grade steers and heifers being shown.

This Fair has a very good secretary, but the management by the other directors was very poor.

Binbrook. The exhibit of swine was very small, and all the animals were left in the waggons except two.

The beef breeds of cattle were represented by Durhams and Durham grades and were a very good lot of typical individuals, well brought out.

The secretary of this Fair appears to be a little behind the times, while the rest of the directors are exceptionally good.

Welland. The exhibit of swine at this Fair was very good as far as I could judge, but the habit of leaving the animals in the waggons prevailed

entirely, not one hoof being unloaded. It appears to me that it would be better to do away with the exhibit of swine altogether than to give prizes to be awarded to animals on the waggons where it is impossible to tell anything much about them.

The beef breeds of cattle were represented by Durhams and Durham grades, they were exceptionally strong throughout, quite frequently a dozen or more would be brought forward in a section of a class, and a number of them of exceptional merit.

The management was only fair.

WHITBY, ANCASTER, CAYUGA, FORT ERIE, BEAMSVILLE, OTTERVILLE, ONONDAGA, BURFORD, JARVIS, LANGTON, BINBROOK, WELLAND.

Dairy Cattle and Sheep, by D. G. Hanmer, Mt. Vernon.

WHITBY. Here I began my work and I was very much disappointed in the quality and quantity of the stock shown, as far as the cattle were concerned, there being only four dairy cows offered and none of them were of a very high standard of excellence from a dairy standpoint. In the sheep classes a few Cotswolds and Leicesters of excellent quality were shown, with very little competition. Two flocks of Shropshires were on exhibition in which were some fine animals, but take altogether the show of stock was not what it should have been, considering the country that surrounds Whitby.

ANCASTER. Here the dairy cattle were very light except in dairy grades, where there was quite strong competition, with a few good animals in the ring. The sheep exhibition was light, with a few choice animals brought forward.

CAYUGA. Some animals of good merit were shown in the dairy classes, and the sheep exhibit was also of a high order.

FORT ERIE. This show had a very wet day, which no doubt spoiled to some extent the exhibition, as it was light in all the classes, and very little can be said of the quality of the stock shown.

BEAMSVILLE. The weather on the day set for the Beamsville Fair was so very wet that it was decided to postpone it until the 12th of October, and this was undoubtedly detrimental to the exhibition of stock for this year. The dairy class was light, the strongest of all being in the grade class, where a few good animals were brought forward. In the sheep competition there were a few animals of high merit, but as a rule it was light.

OTTERVILLE. Here the weather was all that could be desired and the Fair was a good one. In dairy class a few choice Holsteins were out, and the Ayrshires were also good. We saw the best exhibit of Jerseys here that we had yet seen, and some very choice animals were placed in the ring.

The sheep classes were light. One flock of Cotswolds with some good animals was present, also a few choice Leicester and a few good Oxfords, but the Southdown competition was small.

ONONDAGA. The dairy class here was light, with only a few good animals in the grade class. The competition in the sheep classes was limited to two flocks of Shropshires and two of Leicesters, with a few good representatives in each.

BURFORD. The dairy classes were well represented at Burford in the Ayrshires, Holsteins, Jerseys and grades, with a number of choice animals in each. In sheep the best exhibit on the circuit was brought forward, especially in the Down classes, where a number of animals of the choicest of English breeding and recent importation were out.

JARVIS. The Fair at Jarvis was a little disappointing as the weather was not good, but in dairy classes a number of good Holsteins were out. Ayrshires and Jerseys were light but quite choice, and in the sheep classes all breeds were well represented.

LANGTON. In the dairy classes a few good Holsteins were shown, and a few choice Ayrshires, but the greatest interest was centered in the dairy grades. Competition was very strong with some excellent animals in the ring, and it was no small work to give the awards.

BINBROOK. The dairy cattle were not strong in numbers, although some excellent animals were shown. In sheep the Leicesters made a strong showing, three flocks being represented, among which were some good animals.

WELLAND. The dairy class of cattle at Welland was light, only a few good Holsteins and Ayrshires being present, with one exhibit of each. The sheep were strong, especially in Leicesters and Oxfords. Some good Cotswolds were shown, but they lacked fitting.

The management on the whole was fairly good, and with one exception we were well treated by both officers and directors of the different associations. At some of the places the financial condition did not allow of proper classification, which no doubt will be improved another year. In several places there seemed to be a general falling off of attendance, although in other places it seemed to be quite up to former years. A union of some of the Fairs would be an advantage.

TAVISTOCK, CHATHAM, STRATHROY, MEAFORD, BERLIN, WATFORD, BRIGDEN, FOREST, ALVINSTON, MARKHAM.

Horses, by Geo. Gray, Newcastle.

Taken as a whole the shows at which I judged were a credit to that part of the country. At Tavistock there was a fine display of draft horses, perhaps three of the best teams I ever saw in a show ring. The agricultural teams were also good. The two-year-olds were an exceptionally strong class, but the light horses did not amount to much.

Watford show was also worthy of special mention, having the finest lot of draft foals I ever saw together, in fact the draft class all through was strong.

In many places the management was very unsatisfactory. I think, with the exception of three places, there was no ring provided in which to show horses, whereas if this had been done the work would have been finished much sooner and done with more satisfactory results to everyone. It might be a good idea to have a clerk appointed to mark the books for the judge in the show ring. They have adopted that system at several of the Fairs in the Ottawa Valley, and it seems to have given good satisfaction.

CHATHAM, STRATHROY, BERLIN, WATFORD, BRIDGEN, FOREST, ALVINSTON.

Sheep and Swine, by John Jackson, Abingdon.

CHATHAM. Owing to much wet weather in that district the farmers were too busy to come out in large numbers. Here we found a large Fair ground with ample buildings and covered pens for the sheep and swine, but owing to the fear of hog cholera, no swine were shown. The show in the hall was a good one, a good deal of taste as well as skill being shown in the display of

ladies' work. Horses, and especially heavy horses, made a grand show, and the cattle made a creditable exhibit. The sheep were represented by the following breeds:—Leicesters, Lincolns, Shropshires and Southdowns. There were good representative animals in each of these breeds and showed careful breeding, but a lack of fitting, to make them as attractive as they might otherwise have been.

STRATHROY. The next show, the West Middlesex County Show at Strathroy, had a fine ground with ample buildings, and a good half-mile track for speeding the horses. Here we found a good system of management, everything was run in good order and a man stationed in a central position with a large speaking trumpet, to call out the classes, could be heard all over the ground. The show was well attended, with every department well represented. There was a grand show of horses, as regards numbers as well as quality. The cattle also were good, especially the Shorthorns. The sheep were better brought out here than at most of the county shows, and were represented by six of the leading breeds, viz., Cotswolds, Lincolns, Leicesters, Shropshires, Oxfords and Southdowns. Swine were represented by four breeds, Yorkshires and Berkshires being in the lead.

BERLIN. The county town of Waterloo county. Here is one of the most beautiful parks I have seen anywhere, but the building accommodation is not at all what it should be for a county like this. There are no stables for horses or cattle, only a few pens for sheep, and consequently the swine had to be judged in the waggons.

WATFORD. At this show we found a very live President, backed up by an efficient board of directors. The show of ladies' work in the hall was the best I have ever seen, and the show of live stock was splendid. The heavy horses were particularly good, and a fairly good class of cattle were shown. A large class of sheep were out, especially in the long wooled variety. The swine made a good showing, and of the bacon type the Yorkshires and Berkshires were especially good, with some good Tamworths.

BRIGDEN. This was another good show. There were large entries of sheep but they were not well classified, and the swine was the largest and best bred exhibit that I met anywhere. Here we had large classes of bacon hogs in pens of three and five, and a good lot they were.

FOREST. Here we found another good show ground with a piece of natural forest in it. The show of sheep, although not so large as at some other shows, were of good quality, particularly was this noticeable in Leicesters and Cotswolds. The swine, although not a large entry, were good, with the Yorkshires and Berkshires of the best.

ALVINSTON. This Fair has also a fine ground, with a very large hall well filled with exhibits of various kinds. The fruit, especially the apples, would shame our famous Niagara District shows. The sheep were a fair class, but the middle wools showed very little of the "Shepherd's Fine Arts." Mr. Mitchell's Lincolns made a good show and would have done credit to the Industrial Exhibition. The swine were not a large exhibit, but some good animals.

THE CIRCUIT. In conclusion I might say that at about all of the shows we attended we found good grounds, with a good half-mile track for speeding horses, and by the interest taken, it would seem to be a drawing card to the crowd. We found a good attendance at all of the fairs, with good gate receipts. The exhibits were good evidence that the breeders and farmers generally take a lively interest in the agricultural shows.

At some of the shows some improvement might be made in the system of getting the animals out in the ring in order. At most of them the classification might be improved. In many places ewes were shown in pairs, at

other in singles. It seems to me that the consensus of opinion is in favor of singles. It is only a matter of time when all will adopt it and why not do so at once? Then there is the class "Best pair of fat sheep," and this is generally filled with a pair of old, useless, patchey ewes that are only fit for a soap or candle factory. Why not substitute best wether lambs for this, at least for long and middle wools. Again in swine, the classification in many places needs changing by copying the larger, more up-to-date shows as far as means will allow.

CHATHAM, STRATHROY, BERLIN, WATFORD, BRIGDEN, FOREST, ALVINSTON.

Cattle, by R. S. Brooks, Brantford.

CHATHAM. Here the Durhams made a very strong entry, some good animals of nice quality were shown. Beef grades, though few, were good, and in dairy breeds there was only one herd out.

STRATHROY. Here again the Durhams were out strong and were a good lot. In grades and stock steers some really good animals were shown, but the dairy breeds, consisting of one herd of Ayrshires and one herd of Holsteins, were common.

BERLIN. The Durhams here were good, some excellent animals being shown, and one herd of Holsteins were also good. The grade cattle were good, but very few.

WATFORD. A big entry with some splendid animals was made in the Durham class, and a few fair Herefords and one herd of Jerseys about completed the list, although the grade class was large and rather good.

BRIGDEN. Here the Durhams were again in the lead and some very good ones were brought out. In grade cattle the entry was large and very good animals shown. The cattle at this Fair numbered in all ninety-seven head.

FOREST. The Durhams were out strong and were a good lot. Herefords made a good showing, but the Jerseys were common, and the grades mostly good.

ALVINSTON. The Durhams were again to the front, with a few Polled Angus and Jerseys also entered. The grade class was large and a very good lot, eleven animals competing in the aged cow class.

SUGGESTIONS. One suggestion I might make would be that all cows be shown by halter and not loose in pens. At two or three places the grade cattle were shown loose and when it comes to a pen of eleven cows huddled together in the corner of a yard, it takes a great deal of time to work them out and give the awards. It would be much more satisfactory were they led, both for the judge and for the on-lookers.

ELMVALE.

Horses, by Robert Armstrong, Malton.

ELMVALE. At Elmvale, where I judged horses on October 7th, there were some very fine animals, particularly in the agricultural classes, and every section was well filled with the exception of the heavy drafts. There were some good carriage horses in harness shown, but those shown in the halter were only fair.

One great difficulty at several of these Fairs is to educate the people as to the meaning of the different classes, for so often really good horses are disqualified on account of being shown in the different classes.

At Elmvale there is a good president and a good secretary and this Fair evidently has a future before it, as it is situated in the midst of a good farming country and the farmers seem to be interested in the success of their Fair.

Cobourg, Marmora, Colborne, Bowmanville, Warkworth, Norwood,

Poultry, by D. C. Trew, Lindsay.

Cobourg. At this place the show of poultry was not large, but the building was good and the birds nicely classified in stationary coops. Some fairly good birds were shown, but still there is room for improvement.

Marmora. Here there was a large exhibit of poultry, nearly all classes being represented and the competition keen. I found a very enthusiastic lot of poultry fanciers, all eager to learn and anxious to improve their stock. The birds were exhibited in the open air, but the classification was not good.

Colborne. A large exhibit, but not as good in quality as at Marmora. The birds shown in the open air, but they expect to have a poultry building in the near future if the Fairs continue to be held there, as this was their first Fair. The birds were badly classified, but this may be remedied another year as they seem to take much interest in their Fair.

Bowmanville. Not as large a show in poultry as I have seen here before, and no poultry building. The classification was bad, but there is a great improvement in the stock over former years. There are a great many live breeders around Bowmanville.

Warkworth. There is no poultry building, but good stationary coops are outside. The birds were very nicely classified, while there were a few good specimens, but on the whole the exhibit was not as good as it should have been.

Norwood. A very large exhibit was made here. There is no building, but a number of good stationary coops. The birds, however, were very badly classified, although some excellent specimens were shown.

At all of these shows I found poultry exhibitors very anxious for information and it was a pleasure to answer the questions asked regarding mating, breeding, etc. I had to disqualify birds at every place, and always explained the reasons for so doing. I would strongly advise all associations to provide proper poultry houses with coops, as exhibiting birds outside without cover is often injurious.

Aylmer, Whitby, Orillia, Midland, Barrie, Elmvale, Caledonia and Milton.

Poultry, by G. R. Cottrelle, Milton.

The following is a short report of the Fairs at which I judged poultry and acted as demonstrator this fall in the different part of the Province. At Whitby and Caledonia I acted as judge, and at the others as demonstrator, but at all of them I took particular notice as to the quality and quantity of the poultry shown.

Milton and Whitby had the largest number of entries, and had the most quality in all classes as well. Aylmer had quite an exhibit, but the Bantams reigned supreme, while the utility breeds were scarce. Barrie had quite a number of entries and some of good quality, the utility breeds showing a little better, particularly the Barred Rocks. Orillia was not a good show, both the quality and the quantity being poor. Midland was not a bad show as far as the poultry went, and Elmvale had not many entries, the Barred Rocks being by far the best.

At any show where good quality is to be seen a fancier is nearly always at the back of it, even the utility birds, the farmer's breeds, when there is a

good exhibit with good quality it is the fancier, not the farmer. Every person knows that the fancier cannot be encouraged too much, yet if we want to help the poultry industry, through the fall Fairs, we must get the farmer interested. At the show we want him to go and see the poultry, and we want good exhibits of good quality of the utility breeds for him to see. To get him thoroughly interested we should try and get him to exhibit some birds himself, therefore, I think there should be a special prize on all utility breeds for farmers' birds only, and also a prize for the best twelve fatted chickens.

In the past it was the custom at some of the Fairs to let everything go, and the man who had the largest bird usually got first prize. There has been great improvement along this line. The judge cannot follow the standard too closely, and, although we want quantity, we must have quality and more quality than quantity for the market chickens.

The demonstrating part of my work. I found that there were plenty of people at all the Fairs who were anxious to get a little information along this line, and at the Fairs where it was well advertised there was no trouble in getting an audience. I had with me a fattening crate and with it I could explain the methods of fattening. When possible, I secured birds to represent both the desirable and the undesirable types of bird to breed from, and also the proper methods of killing, plucking, dressing and marketing. I also discussed several other lines of poultry industry.

The important part is the advertising of this particular work. It should be advertised to take place at a certain place at a certain hour, and then the audience would not be lacking and it could be kept up for some time.

Vankleek Hill, Ottawa, Brockville, Perth, Lansdowne, Almonte, Renfrew, Metcalfe, Richmond, Beachburg, Chapeau.

Poultry, by Newton Cosh, London.

Vankleek Hill. Here I commenced my duties and regret to say that the entry here was very light, with the quality below the average. The old-fashioned custom of excluding exhibitors from taking more than one prize in each class accounted to a great extent for the small entry.

At Ottawa I was told that the increase in entries over last year in the poultry division was four hundred, but as Messrs. Butterfield and Hare placed the awards, I will not attempt to describe the birds shown, only to say that some of them were splendid.

Brockville. This was the next on our list and there was a fine display of poultry here, consisting of 309 entries, in pairs, making a total of 618 specimens on exhibition. The management in this department are deserving of great credit for their untiring effort to make the poultry exhibition a success. However, the cooping capacity was somewhat overtaxed, many birds being shown in small, cramped coops, thus rendering it impossible to do justice in point of judging.

I would suggest here that the management adopt a single entry system, as many a good bird has to suffer defeat through an inferior mate. The quality of stock in the following were good:—Barred Plymouth Rocks. First pair of old birds was well matched and of good quality. The first pair of chicks was also very good. The superior quality of the pullet was responsible for this victory. White Rocks.—The choice of the lot was the first pair of old birds, shown in good condition and with plenty of quality. White Wyandottes were quite disappointing outside of the first winners. The Buff Wyandottes were out in quantity, with good quality. The Black

Minorcas was the banner class of the show. The first old pair won the special for the best pair of birds in the show. The first and second chicks were splendid birds. The special prize for the second best pair of birds in the show was won by a pair of fine Houdans, and the third special went to the first pair of old Barred Plymouth Rocks. The White Leghorns were another class with good winners.

The classification at this show was good and nearly every variety well represented. By adopting the single bird entry this Fair would be well to the front in poultry.

PERTH. This show came next in line with 336 single entries. Through my recommendation last year the single bird entry system was adopted and gave much better satisfaction than the former way of showing in pairs. There was also a marked improvement in the quality of stock over last year.

The White Leghorn class in this show would do credit to any of our large shows. The first prize pullet was unusually nice, and the Brown and Buff Leghorns were large in number and fair in quality. In White Wyandottes the first cock won the special as best cock in the show, and it was certainly a splendid bird and shown in good shape. The first hen and first cock were above the average, the latter was rather young but very promising and the pullet was a gem, well matured, pure white and of a remarkably true Wyandotte type.

The winning crate of best twelve fatted cockerels (Gatehouse Special) was a plump, well fatted lot, although I fear that some of them were slightly over the five pound limit.

The poultry house here is a fairly good one. The classification of the birds, however, could be improved upon, and in order to do this the exhibitors should make their entries before the eleventh hour.

LANSDOWNE. Seventeen entries made up the entire exhibit, with the same system as at Vankleek Hill, viz., not allowing one exhibitor to take more than one prize. However, they have promised to do better next year

ALMONTE. This town has already a noted reputation for good poultry, and this year breaks all previous records. The winners at the last show were in évidence here. The management deserve great credit, as they have a newly erected poultry house that in point of neatness and convenience is perhaps the finest in the country. It is well lighted, well ventilated, and a feature that adds greatly to its neatness is a cement floor. The superintendent has everything in perfect order and is the right man in the right place.

The Barred Plymouth Rocks were the banner class in this show. The first cock was large, good shape, good head and barred right to the skin. The second and third were only fair. First and second hens were a good pair and well shown, but the third was dirty in color. First cockerel was a gem, good head, grand shape and color and an easy winner, the second was young but promising. The first pullet was a good, all round bird, but the second and third were just fair. The White Wyandottes first prize cock was a good specimen of the breed, but a trifle long in thigh. The first cockerel was a neat one, good comb and eye, and when matured will possess good shape and color. Pullets, first rather small but of true Wyandotte type, the remainder of the class were lacking in this respect. The Leghorns, White, Brown and Black Minorcas, Andalusians, Spanish, Dorkings, Silver Grey, Colored and White Polands, all varieties. The Gatehouse Special for the best twelve fatted cockerels brought out two lots, one each of Barred Plymouth Rocks and Silver Laced Wyandottes. The former were over weight and the prize went to the latter, also one dozen each of pullets, and in this case the Rocks won out. They were an even lot and well fatted.

RENFREW. This Fair had seventy-nine pair and six crates of best twelve fatted chickens. They have here quite a nice little poultry house, but not large enough to hold such an exhibit and the fatted chickens were compelled to occupy a tent outside. The quality of stock was scarcely up to Almonte, although some nice Buff Orpingtons and Barred Rock pullets were shown. The fatted chickens were among the nicest we have seen this year. There are a few good fanciers in this town and they are bound to come to the front.

METCALFE. Like Almonte, this show has built a new poultry house with a capacity for cooping over five hundred birds, which was taxed to its utmost with 497 entries. The coops were built of wire, with galvanized iron petitions. This show has grown too large for a one-day show. It was noon before the birds were placed and ready for judging, and before the judging was completed the exhibitors had commenced to coop up their birds. This should be remedied another year and have all the birds placed the first day ready to commence judging by nine o'clock the following morning.

The quality of the stock was equal to Almonte and Ottawa, and the winners the same birds in many cases. The display of Bronze Turkeys, Pekin Ducks and Toulouse Geese was far above the average. The contest for the Gatehouse Special was keenly contested with a lot of fine birds.

RICHMOND, with 211 single entries and a large exhibit of fatted chickens, made quite a nice show. The management was quite energetic and everything went off well.

BEACHBURG. I regret to say that the poultry exhibit was not very good, not on a par with the rest of the Fair or it would have been first-class. With the exception of a few splendid Plymouth Rock pullets and a large class of geese, the show lacked interest, there being no competition in several varieties. The breeders in this section should invest in "The American Standard of Perfection" and acquaint themselves better with the requirements of the different breeds, as we frequently found birds entered in certain classes when they have not the merit to qualify them for such. Here there was a class for "Toulouse Geese" and another for "Common Geese," about three pairs would be shown in the former and six in the latter, with the majority of them "Toulouse," which should have been shown in their own class. It does not appear to me to be fair to award these birds a prize in the "Common" class, even if they are the best ones in the exhibition when there was another class provided for them.

CHAPEAU. This was our last show. One year ago you could have counted all the poultry at this show on your two hands, with scarcely a standard bird in the lot, and they were shown in a few boxes in the open air. This year they had built a chicken house and in point of quantity were ahead of several of the other shows we attended. Of course we cannot say much for the quality, but they will get that through time.

We judged the butter at this, and several of the shows we attended, and what they lacked in poultry they made up in butter. The butter at Renfrew and Almonte is also worthy of special mention. The competition at the former place is almost fierce, to use a common expression, and the quality second to none. Almonte had a fine exhibit of excellent cheese. Beachburg had a very large exhibit of dairy produce. Many of the cheese factory patrons had kept at home one or two meals of milk in order to make butter for this show, and it was evident that they were slightly out of practice, as a lot of it was rather soft and lacked body, but even had it been first-class the majority of the samples were to new to judge well and had been salted with salt much too coarse.

In conclusion I would like to thank the management of the different associations and particularly our good friend Mr. R. B. Faith, of Ottawa Valley Journal, for the hospitality and painstaking way with which we were treated while with them.

CHATHAM, SIMCOE, SPRINGFIELD, AYLMER, RODNEY, HIGHGATE, RIDGETOWN.

Poultry, by T. H. Scott, St. Thomas.

BRANTFORD. In giving a short account of the Fairs visited by me this fall I might say that here I found a very nice exhibit of poultry, cooped in very neatly in the coops used for their Winter Fair. The poultry building was large with a good light and all birds shown singly. The exhibit of water fowl shown by Mr. Colwell of Paris was exceptionally fine.

CHATHAM. Here the display of poultry was good. The birds were shown singly, and all varieties represented. There was a good exhibit of Barred Rocks, but the water fowl was light.

SIMCOE. Here the display was large. The birds were shown in pairs, cooped in their winter show coops. The building was well lighted and the birds well classified. The White Wyandottes shown by Mr. Martin were a very strong class, and shown in fine condition. Buff Orpingtons shown by W. B. Tomlinson were also a very fine class. The Barred Rocks were good, but the water fowl did not amount to much, although one pair of Pekin Ducks attracted a good deal of attention.

SPRINGFIELD. The fowl were of good quality, but not very large in numbers. The exhibitors provided their own coops and some were so small that it was impossible to judge birds properly in them.

AYLMER. A good poultry show. The shows were shown in pairs and all varieties were well represented. The birds were well classified, and the Fair throughout was good in this respect.

RODNEY. The poultry exhibit this year was small, owing to the fact that other shows were on the same day in that vicinity, and undoubtedly took some of the exhibits.

HIGHGATE. The quality of the poultry was good, and the exhibitors found their own coops. A special prize has been given for three years, for the best exhibition coop, and has resulted in an improvement in the coops. This was the result of a suggestion from the judge three years ago, and it would be well if it were to be adopted by all secretaries where the exhibitors have to find their own coops. Many good birds are overlooked when they are confined in a small coop with wire netting covering the front of it so the judge cannot handle the birds. All coops should have doors on them, which the judge could open at will, and no bird given a prize unless it is worthy. This will induce the exhibitors to bring out better birds next time and will also save money for the association.

RIDGETOWN. The exhibit of poultry was splendid. The Buff Rocks were a very strong class, one cockerel selling for $25. Buff Orpingtons were also very fine and the Buff and White Leghorns were not far behind.

As a whole there has been a great improvement in the poultry at the Fairs this fall.

ORILLIA, BRACEBRIDGE, MIDLAND, BARRIE, ELMVALE.

Poultry, by W. J. Bell, Angus.

I beg to submit report of the poultry shown and the conditions under which the same was shown at the fall Fairs at which I had the honor to judge

ORILLIA. Commencing here, on September 18th, I found a small exhibit, due probably to the very unfavorable weather, but the quality was good. Particular mention might be made of a pair of Rose Comb Brown Leghorn chicks, which were the best I have seen this year. Barred Rocks, White Wyandottes and Black Minorcas were very good, as also were the Houdans. Some mongrels were shown in the water fowl classes in the "Any Other Variety" sections.

A suitable poultry building is very much needed at this place.

BRACEBRIDGE. There was a large collection of poultry and the quality was generally very poor. The prize list here called for "Cock and two hens" in the old birds, and "Cockerel and two pullets" in the young. This is a mistake and should be rectified as it is hard enough for a judge to decide the merits of a good male and poor female, against a poor male and good female without having an extra bird to contend with, and all three crowded into a small coop. This Fair has a building that, with a very small outlay for windows, could be made very suitable for a poultry building. A man to classify the exhibits as they arrive and see that they are cooped properly is very much needed.

Before I started to place the awards here I mentioned to the secretary that a very great number of birds would be disqualified and he requested me not to do this, as he thought it would have the effect of cutting down next year's exhibit to such an extent that it would be no attraction. He asked me to just place the awards on what I considered to be the nearest approach to the different sections, and you may judge what this amounted to when I tell you that I placed a prize card on a trio entered as "Any other variety," the male being of an entirely different breed from the females. Pekin Ducks were good with an entry of, I think, nine pairs. The best Brown Bronze Turkeys I judged this year were at this show. A trio of Houdans won the sweepstakes for best trio, any variety, on exhibition. Mongrels again entered largely into the water fowl sections.

MIDLAND. Here on September 29th there was a splendid exhibit, and with a few exceptions were of good quality. The exhibitors show in their own coops, piled up against the fence, the sun was shining very strongly on the birds during most of the time I was judging, and in one case caused me to overlook two very small red feathers in a pair of Black Minorcas. After I was through my attention was called to them, and the sun having gone down from where the birds were, they were plainly seen.

An exhibit of poultry, such as Midland has, deserves a building with coops from which the birds can be taken and handled. A magnificent Barred Rock cock was shown here, and with a hen of fair quality won first for the best pair, any variety on exhibition. A pair of splendid Black Breasted Red Games won in the chicken class for the best pair, any variety. The Minorcas were good, both in young and old.

BARRIE. The Fair was good. There is a splendid building, coops with open fronts, and the best superintendent on poultry that I have ever worked with, which made judging here comparatively easy. All classes are arranged in rotation as they appear in the judges' book, and as soon as one class is judged you do not have to go to the other end of the building for the next, but find it right adjoining the class you have finished. As far as the management of poultry department is concerned this show takes first place.

The Barred Rocks were a splendid class, both in young and old. A pair of Rose Comb Brown Leghorn chickens, the same ones which won at Orillia, were again given first here and could have won sweepstakes at both Fairs had such prizes been offered. All other classes were fairly well filled

and in most cases the quality was good. Again mongrels were entered in water fowl classes, also in "Any Other Variety of Turkeys."

ELMVALE. This Fair came on October 7th, and had a very neat little building and a fairly good exhibit. There were not many entries in each section but the quality was fair, when considered collectively. I have again to complain of mongrels or crosses being shown in the water fowl classes. This seems to be a common mistake and needs some education as to what is meant by this "Any other variety" section. For example, take geese, the Fairs all give prizes for Toulouse variety, and when another section is given for any other variety, the majority of people think anything in the shape of a goose can compete. I would recommend that lists should be changed to read "Any other standard variety."

BEAMSVILLE, JARVIS, LANGTON, WELLAND.

Poultry, by C. J. Daniels, Toronto.

BEAMSVILLE. There has always been a great deal of interest taken in poultry in this district. I found the exhibits here above the average, especially in White Wyandottes. The birds were of good type and well matured in every way, in fact many of the pullets I feel sure were laying at that early date. The White Leghorns were also a heavy class and of a good quality as egg producers. It is hard to beat the Leghorns, either white or brown, as layers. We might also term them "egg machines." The other classes were also fairly well filled.

Beamsville has a good poultry house in which to show the birds, but the coops should have a little spent on them. The fronts were of lath and it was almost impossible for the judge to see the birds and to do himself and the exhibitors justice. The cost would be very little to pull these slats off and substitute wire fronts. In fact the cost would not be over ten or fifteen cents each, according to the size of the coop, and the exhibits would be better and the visitors to the show would be given a chance to see what the birds were like. In all the other exhibits, they are nicely laid out on the tables, etc., etc., and in live stock the cattle, horses, etc., are shown around the ring. Why should not the poultry have the same chance?

JARVIS. The exhibits of poultry at this show were not as large as at Beamsville. The exhibits of Barred Rocks here were splendid, especially one pullet hatched in February in an incubator, and I was called to time for awarding this bird first prize, the party claiming that it was a hen. I took her out and showed those interested that no hen would have such a plumage as that bird had, every feather was bright and free from looking old and rusty.

The Buff Rocks were a grand class here and a credit to any show, well matured, good shape and color. Jarvis has a good building they could utilize, but not a coop in the place, and should it be wet it is very hard on the fowl as they are liable to get cold, and the exhibitors would suffer in the loss of fowls.

There was a great interest taken while the birds were being judged and many questions asked as to the merits and demerits of the different breeds.

LANGTON. The poultry here were a very small entry. Geese were a heavy class. There does not seem to be much interest taken in this section. I think there could be some good missionary work done along these lines. There were some good birds here, birds that had been shown at Toronto Industrial and had carried off the red ribbons. The same state of things existed here as at the two former places, and the birds were shown out in the grounds in any old coops.

WELLAND. Here there was a real good poultry exhibit in about every class shown. The Light Brahmas were a nice lot. The White Rocks were extra good, both in old and young. The White Leghorns were a credit to any show, and the Brown Leghorns were also good. There is just the same trouble here about the cooping, as suitable coops were not provided. We found, say Light Brahmas, in all four corners of the building and in the middle too. How much nicer the show would be if they were all provided with coops and classified.

Another thing I would suggest is that any and all special prizes offered by parties, to be competed for in the poultry department, be placed on varieties that are in the prize list. I found at this show, and one other, that special prizes had been offered for Oklahamas and Sumatras varieties, that are hardly known outside of the fancy. Consequently these specials could not be won by any exhibitor. In all conscience the awards are small enough and when there is a special prize given the exhibitors should get it.

SOME PRESS REPORTS OF EXHIBITIONS WHERE EDUCATIONAL FEATURES WERE THE PRINCIPAL ATTRACTIONS. RENFREW MODEL FAIR A GREAT SUCCESS.

"Inside of three years you should be able to attract 10,000 people to the Renfrew Fair!" That was what Mr. G. C. Creelman, Superintendent of Fairs for Ontario, said to the directors of Renfrew Fair when on their invitation he visited Renfrew in the autumn of 1902. So the directors set out to get as many of the 10,000 as they could this year. And there are those enthusiastic ones among them who believe that the 10,000 would have passed through the gates this year had it not been that the clouds hung heavily and that it rained nearly all of Friday morning. As it was, some 7,000 were on the grounds during Thursday and Friday, besides some hundreds on Wednesday.

But better than the crowd, even, is the fact that a firm foundation has been built for future greater success, in that everybody seemed to be delighted with the improvements made in the grounds and with the Fair itself: the general impression being that it was the best Renfrew Fair ever held, a most enjoyable one, and in some of its features even more attractive than the Ottawa Fair.

It seems to be generally admitted, too, that the extension of the Fair to three days was a move in the right direction. To a few of the live stock exhibitors there are perhaps some disadvantages, but to everybody else it seems preferable. In fact, the judging of all live stock exhibits and the special events could not have been accomplished in one day.

The enlarged ring, with its two natural grandstands, and its encircling low closeboard painted fence, was the admiration of all. The privacy of the ring was honored, too. The crowd remained outside its bounds, and so all had good and equal opportunity to see everything that was going on. The ring was large enough t oaccommodate several events at the same time. Although there were no "circus" attractions, the onlooker was reminded of the three-ringed circus, for something lively was going on all the time,—for instance, the judging of horses, a game of lacrosse, and a tug-of-war were all in progress at one time; at another, horse-judging, baseball and foot races.

Probably no one event took the general eye so much as the parade of prize animals. It had been announced for the morning of the last day; but ow-

ing to the rain it had then to be abandoned. At four o'clock, however, it was called for, and a large proportion of the prize horses and cattle were brought into the ring. It made a striking picture of the wealth and progress of the people of this district; and there is widespread regret that a photograph of the scene was not secured.

One of the weakest spots in the Fair is the main building. Given a good harvest, there is little more than enough room in the building for the display of agricultural productions, fruit, flowers, and, upstairs, of ladies' work. Consequently there is ordinarily so little room left, that no great number of local manufacturers or merchants can be given accommodation for the display of their wares far enough ahead to arrange any particular attractive exhibit. This year, owing to the shortage in the root and fruit crops, there was more room than usual in the hall, and the blank spaces were filled by several merchants on short notice. Displays out of the ordinary were the well arranged samples of goods manufactured by the P. R. Cumming Manuafteuring Co., soon to be in active operation in Renfrew; the stand of the Frontenac Cereal Co., whose representatives served their new cereal food "Orange Meat" -with sugar and cream to all who asked for it, and have since, we understand, secured orders for their product from all the retail stores in town; several cream separators; Karn pianos, whose keys were in pretty constant manipulation by Prof. Bain; and, upstairs, a fine display of pencil and pen drawings and water color paintings and handiwork of the venerable J. S. J. Watson, of Rockingham, and exhibited by his daughter, Mrs. J. K. Rochester, as well as paintings by Mr. Watson's sister.

The display of grain and seeds was moderately large, and the samples fine. Roots were somewhat lighter than usual, though the display of potatoes was fine. In fruit, also, the display was lighter than usual; partly due to the season, and partly also to the absence, as exhibitors, of Mr. S. Forrest, and of the late Joseph Knight, both of whom in former years had contributed largely to the fruit display. The floral display was good; Mr. C. K. Grigg in greenhouse plants and Mrs. Malcolm McDermid in annuals being the largest exhibitors. The judge, Mr. R. B. Whyte, an horticulturist of note, was greatly taken with Mrs. McDermid's flowers and regretted his inability to pay her home a visit. He was sure that she must have a beautiful home. The handsome flowering plant of Mr. Grigg which took the special as the handsomest plant exhibited was the famous Golden-banded Lily of Japan. It was a beauty.

The Live Stock.

There was not an empty horse stall or cattle shed, and only a few vacant pens in the sheep and swine; while the poultry overflowed the regular poultry shed and were housed under a large tent kindly loaned by Mr. A. C. Mackay. The Renfrew Poultry Association has certainly encouraged the showing of fine poultry.

As to the display of horse flesh, it was one of the main features of the exhibition. It is hard to conceive of anything much finer; and men of experience say that outside one or two fancy outfits, Toronto owned, it is doubtful if any show in any section of the Province had a finer display.

In cattle, in addition to the animals owned in the immediate vicinity, the directors, welcomed Duncan McLaren & Son, of Dunmore, back again this year. It is some years since they have shown here; but as an old Renfrew boy, and heartily in sympathy with the efforts made by the directors to improve the Fair this season, Mr. McLaren decided to lend a hand. His

herd of Shorthorns—which won the special herd prize—were remarkably fine animals and worthy of special mention. The head of the herd was the bull "Orange Victor," an "Orange Blossom" bull, bred by Cruickshanks. "Flora," the dam of Orange Victor, was a descendant of Orange Blossom 21st, who was the dam of William of Orange, one of the most famous Scottish Shorthorn bulls. The sire of Orange Victor was the "Marquis of Zenda," described by the Breeders' Gazette of 1901 as "clearly the best bull in Canada at the present time." The elder female of the herd was the 3-year-old beautiful white cow "Crimson Belle": the others were the two-year-old heifers—"Claret Maid," a roan "Campbell Claret," and "Lady Lorne," also a roan. Claret Maid is an even-made sweet heifer; Lady Lorne a large animal of the thick-fleshed kind. The heifer calf was a roan, "Crimson Belle 3rd," and was highly spoken of by the expert judge, who said that if it were "kept on" it would be fit to go into any show. The judge in fact spoke highly of all the members of the herd, and they certainly made a fine addition to the Fair.

In the sheep classes, Mr. John Barr was the largest exhibitor, with some fine Shropshie Downs. In swine, Messrs. David Barr, jr., X. Plaunt, of Northcote, and H. T. McDowell, of Pontiac, had matters pretty much their own way in the classes Yorkshire, Berkshire and Chester Whites respectively. The animals were fine ones, and it is hardly too strong an adjective to say that they were in beautiful condition. The pig will soon lose its name as a dirty animal, if kept as these exhibitors kept their exhibits.

The Experimental Plots.

Mr. John Buchanan, of the Ontario Agricultural College, came down in place of Prof. Zavitz to take charge of the experimental plots during the Fair. He had them nicely trimmed up and in very presentable shape by Fair day; and while there was perhaps never a crowd present at any one time, he had a steady stream of intelligent farmers continually coming and going and asking questions. One of the most examined plots was that of the Kohl Rabi, a white-looking root, used for sheep food in the old country, but marketed as a table vegetable on this side. There were many queries, too, if the hairy vetches were not almost a pest in the tenacity with which they would take root; but we understood Mr. Buchanan to say no, that they must not be confounded with the wild vetches, which they somewhat resemble. The wild are perennials. Those grown on the plots are annuals. One of the most useful features of the plots was the growing together of Hungarian grass, and on one side of it Japanese Panicle Millet and on the other side Japanese Barnyard Millet. While the Hungarian was perhaps eighteen inches high, the millets were several feet high. They were all for the same use, and the great advantage of growing these selected varieties in preference to the Hungarian must have been at once apparent. The Hungarian here was the best crop Mr. Buchanan had seen anywhere. At the Whitby plots, Mr. Creelman said, the Hungarian grass was perhaps 12 inches high, while the millets towered up six feet. This fall the plot will be manured, and next year the crops in it will be even more interesting.

The Women's Meetings.

With the view that nothing is too good for the ladies, the highest spot on the grounds, with the prettiest outlook, was chosen for their tent. But lo, the winds blew, and the tent came down. And even after it was re-erected the wind blew too strongly to permit the gasoline stoves to be oper-

ated. Consequently the cooking demonstrations were cancelled until Friday. The tent was then erected in a more sheltered spot; and on Friday afternoon all the chairs were occupied, as Miss Agnes Smith, of Hamilton, and Miss Mills, of Guelph, gave their demonstrations. During the afternoon it was decided to form a Women's Institute for South Renfrew, and the following were chosen as the first officers:—

President, Mrs. Allan Carswell; Secretary, Mrs. S. T. Chown; Committee, Mrs. A. A. Wright, Mrs. Malcolm McDermid, Miss Galbraith, Miss Kate Stewart (Horton), Mrs. W. A. Mackay, Mrs. John Hay, Mrs. Cairns, Mrs. Jas. A. K. Walker, and Mrs. H. J. Airth.

The Painting Experiments.

The improved appearance of the buildings, painted, was a matter of general comment. Under favored circumstances, that is, with a straight open surface, such as the outside of the fence on the Coombes road, with one man to mix the paint, another to operate the machine, and one to handle the hose and nozzle—the whole outfit being drawn by horse and dray—as much as 12,600 feet were painted one afternoon. But taking roofs and interior painting into account, the average of space covered in the painting of the buildings fell considerably below what was claimed by the makers of the pneumatic machine and paints. Yet even then, and taking into account the inexperience of the operators, good work was done, at an expense far below what the same surface would cost painted in the ordinary way.

Notes.

Mr. G. C. Creelman, Superintendent of Fairs for the Province, spent a day at this model Fair. It is in a sense one of his "children," and he was well pleased with the progress it had made. President Barr he declared to be one of the most business-like presidents he had come across; and he was particularly impressed with the spirit of unity that pervaded the directorate and the townspeople in dealing with the Fair. It did his heart good to see the decorations in the town. He was also impressed with the lay-out of the grounds. They grew upon him the more he looked them over; as indeed they seem to have done on all visitors. Those who knew the grounds of old would not have thought so much could have been made out of them. It is doubtful if few prettier spots for a main building could be picked on anywhere than on the elevation to the southeast of the ring, near the experimental plots; and where it was intended to have the women's tent this year. In response to a request from the directors, early in the year, Mr. Creelman is busily planning out a model Fair main building that will serve as a basis for Renfrew or any other country Fair. He finds it a difficult problem, but will have the assistance of the Provincial architect in the task.

While inspecting the fruit tables, Mr. Creelman made a suggestion that instead of offering equal prizes for all varieties of apples, all the poorer kinds—the ones that cannot be grown successfully in this district—should be cut out of the prize list, and the extra money devoted to more and larger prizes for the varieties which will do well here. He gave it as his opinion that the McIntosh Red should be grown here more extensiely than any other. It is a good packer, and grows to perfection in the Ottawa and St. Lawrence Valleys. Mr. Adam Harkness, of Iroquois, had orders for 400 barrels at $4 a barrel, and can sell many barrels to select purchasers on the American side at $5 a barrel.

Mr. A. McD. Allan, of Goderich, who has been one of the Canadian Commissioners at the Glasgow and Paris Expositions, was an interested and pleased visitor at the Fair. He was asked for hints for the improvement of the Fair, and suggested just the same lines as Mr. Creelman, the reduction of the prizes for the varieties of fruit that grow poorly here, and the extension in number and extent of the prizes for the kinds that have been proven valuable in this district.

Sports.

There were none of what are known as circus attractions at this model Fair, but athletic sports and games took their places. The football match between the Horton Club and the Rideaus, of Ottawa, took place on Thursday morning and was well contested. Neither side scored until within a few minutes of the end of the game, when the Rideaus counted one. In the baseball match between Renfrew and Northcote teams in the afternoon, Renfrew won by 8 to 0.

The rain of Friday morning somewhat spoilt the grounds for the lacrosse match between Renfrew and Carleton Place; but it was played in the afternoon and was splendidly contested: the score being 3 to 3.

The tug of war between the Canada Atlantic employees and the men of the Pembroke Lumber Co., was another splendid test of dogged endurance. Fire Chief Millar, of Renfrew, was referee. The crowd was kept back from the contestants and everybody had a fair chance to witness the struggle. It was to be the best two pulls out of three. On the first tug, the Lumber Company team won by a couple of inches; on the second they won by several inches.

The foot races on both days were under the superintendence of Messrs. Jas. Clark, W. Barclay Craig, Ambrose O'Brien and E. McCrae. Most of the events were well contested, and gave considerable amusement to the spectators.

But the horses! There is no doubt that they form one of the most attractive features of the Fair, and the events were well handled by Messrs. D. W. Budd, Allan Carswell, sr., and James Martin.

While of course there is still room for improvement, and the directors by no means accomplished all they hoped to do, still looked at from every point the Fair seems to be unanimously voted a grand success. It was so because the directors worked together and all did a share, and besides had the steadily growing sympathy of the people to urge them on; but it is not invidious to say that President David Barr and Director D. W. Budd deserve special mention for their untiring efforts.

The ladies of the W. C. T. U. had a busy time serving meals. By the first night, the supplies they had laid in for both days were exhausted; and they had to hurriedly replenish the larder for Friday's crowd.

The ladies of the Hospital Committee also were most successful. Their receipts were some $80, and the expenses will not be heavy. The list of donors will be given next week.

The Boys' Band spent a portion of both afternoons on the grounds, and delighted the crowds. The merry-go-round was present to the great pleasure of the youngsters, and there were cane and ring men, balls and dolls, and even one human donkey, with painted face, who allowed all comers to hit him in the face—if they could,—three tries for 5 cents. He wept a few tears before the day was over.

The gate receipts were within a few dollars of $1,100.

A Record Breaker.

Simcoe town in Norfolk County has a record for attendance, year after year. No special attractions of any kind are allowed on the grounds, and they have no track for speeding horses. Below will be found a press report of this Fair.

Third day of the Fair draws the biggest crowd on the grounds.—Gate receipts $500 in excess of last year. -In every detail this year's Fair voted a great success.

In our last issue we stated that if the clerk of the weather continued kindly, and sent good weather for the third day of the Fair, our 1903 exhibition would be a record breaker.

And Jupiter Pluvius did stay his hand long enough to make glad the hearts of President Groff, Secretary Murphy and their colleagues. It did not rain until the Fair was over, and then it proceeded to make up for lost time, and home-goers got drenched. It was the only unpleasant feature of what could otherwise be marked in the records of the society as the best Fair in its history.

Gate receipts did not quite reach high water mark. In 1892 $1,767 was taken; but that was the first year of the three day show, and the people thought it was necessary to be on hand two days to see everything, and $450 was taken on the second day. The public got wise and from that year until the present the receipts for the second day have been little or nothing.

The following is the record for the last eighteen years:—

1903	$ 1,711 60	1894	$ 1,414 20
1902	1,228 43	1893	1,455 01
1901	701 85	1892	1,767 00
1900	1,333 30	1891	1,153 00
1899	1,366 70	1890	1,351 95
1898	624 00	1889	1,350 00
1897	1,432 85	1888	998 00
1896	1,106 95	1887	1,139 00
1895	1,142 42	1886	1,092 00

Of the sum taken this year $1,551.15 came on the third day, a record figure, and showing that there must have been over eight thousand people upon the grounds.

The Second Day.

After some years of strenuous but fruitless effort the society appears to have made a beginning toward popularizing the second day. When the Fair was made a three-day one the mistake was made of providing no special programme for the second day. The harness horse classes were compelled to exhibit, but the prizes were not given, and people coming only on the third day saw everything. It will not be so any more. This year the second day's programme was voted quite as interesting and much more fun provoking than that of the third day.

The three schools that entered for the competitions all did themselves proud. The boys of the Waterford school marched and drilled like veterans and presented a fine appearance in their sailor togs. The fancy drill of Miss Randall's squad from No. 8 Townsend, was well put on, and would have won a prize in the hottest competition. It was a matter of remark by many that the Simcoe schools were not represented—an omission that we fancy will be repaired next year. In fact from the general talk it is plain that next year a great extension of interest in School Children's Day may be expected.

Following the school competitions and races came the horse-back sports and they afforded much amusement for the spectators. Next year, if the directors are wise, they will increase the number of events under this heading materially. The novelty race, the potato race and the skirt and bonnet race all drew full entries and each had about a dozen to face the starter. All were keenly contested. In the novelty race Mr. Kydd demonstrated the superiority of his animal. In the trotting it almost doubled on the field, and won by almost a lap. The potato race was fiercely contested, Mr. Stewart won out by only a few length from Norman Kydd, who was urged on throughout the race by the cheers of the crowd with whom he was first favorite. The skirt and bonnet race created great laughter and everybody wanted an encore.

Entries.

The following is a tabulated statement of the number of entries in the different departments. There was a decrease from that of last year, which is accounted for by the scarcity of farm labor. Farmers who have exhibited in former years declared that they were so busy with their farm work, which had to be attended to and they could not get help, that they had no time to prepare exhibits:—

Horses	467
Cattle	267
Sheep	150
Pigs	80
Poultry	240
Grain, seeds, etc	171
Potatoes and roots	195
Garden products	235
Fruit	755
Plants and flowers	95
Dairy products	306
Carriages	35
Exhibits, harness, etc	36
Arts	235
Coverlets, etc	175
Ladies' work	429
Nature studies	5
Apple competition	8
School entries	41
Gymkhana	50
Specials—Hunter, saddle horse and gent rider	28
	4,003

Fair Notes.

In horses, as in former years, it was Norfolk against the rest of the country.

The display of apples was a magnificent one. In fact all the fruit classes were well filled.

Mr. Crowe, of Toronto, and Mr. Fuller, of Woodstock, both widely known horsemen, were well pleased with what they saw.

There were no drunks and no fakirs. A more orderly or better behaving and appearing crowd never congregated in Ontario.

The rearrangement of the fencing so that larger portions of the grounds are kept free from teams was universally commended.

Superintendent Kydd was indefatigable in his efforts to meet the many demands upon him. He is certainly the right man in the right place.

The domestic science tent was well patronized, and the lectures and demonstrations by Miss Smith and Miss Mills were much enjoyed by large numbers of ladies.

Mr. Alex. R. Ewing was mainly responsible for the attendance of the Waterford and Townsend schools and he was warmly thanked by the officers of the society for his efforts in their behalf.

Mr. Linus Wolverton, of the Canadian Horticulturist, was in attendance, He gave a most instructive address at the Wednesday evening meeting on the packing and transportation of fruit.

Mr. A. McNeill, the head of the Dominion Inspection staff, was very enthusiastic as to the superiority of Norfolk's Fair. He considers it the best county Fair in Canada. He gave interesting lectures on fruit packing and made a fine speech, interspersed with many laughable stories, at the meeting on Wednesday evening.

All of the judges were very complimentary. Some of them enthusiastically so. Mr. T. H. Race, of the Mitchell Recorder, a well known horticultural expert, paid his first visit to the Simcoe Fair. He is a judge of many years experience and has seen every good Fair in Canada. He told The Reformer that Norfolk need not fear comparison with any he had ever visited.

On Wednesday evening the directors, their guests and the judges took part in a free-and-easy in the parlors of the Battersby House. President H. H. Groff occupied the chair and there were speeches both instructive and amusing, song and friendly converse. This is an annual event looked forward to with pleasure by all the visitors, and is no doubt, in some degree at least, responsible for the Society's ability to command the return each year of so many high class judges.

The women's building was voted a decided improvement. The abolishing of stairs and consequent crowding was universally approved of. The desire of the directors is, next year, to erect another one-storey building about the size of the women's building, but with perhaps a little more architectural pretensions, to be used to accommodate industrial and mercantile exhibits, with a smaller building for horticulture and floriculture. With these completed, the property of the society would, the directors think, be about complete.

Mr. R. F. Holterman, the bee king of Brantford, was in attendance throughout the Fair. He told the Wednesday evening meeting that in his opinion there was no better county in Ontario for bee culture than Norfolk. As a proof of his faith in this idea he said that he had been farming out his bees in Norfolk all the past summer, and that at a moderate estimate he would this year alone take out of the county 30,000 pounds of honey. There was absolutely nothing in the idea that the making of honey detracted in any way from the productiveness of the land or the size of any crop. Honey is a by-product, an absolute clear gain to the wealth of the country. With very little effort Norfolk could turn out 1,000,000 pounds of honey every year—sweetness that is now allowed to go to waste.

WOMEN'S WORK AT THE GODERICH FAIR.

The redeeming feature of the indoor departments was the work of the Women's Institute and the demonstrations in domestic science and dairying. The rotunda was handsomely decorated with evergreens, grain in the straw, flags and bunting, forming one of the prettiest scenes in the history of the Fair. A platform erected in the centre allowed a good view of the operations, and the only defect was the difficulty in hearing the speakers owing to

the movements in other parts of the building. Miss Agnes Smith, of Hamilton, and Miss Mills, daughter of the President of the Guelph College, conducted the cooking operations, and the neatness and deftness of their preparations and the toothsomeness of the dainty morsels handed around to the spectators called out many words of praise. Miss Green, of Loyal, who won second at Toronto and first at London in the dairy competitions, made butter of the choicest kind and taste, and had many interested observers. Mrs. D. Cantelon, president, and Mrs. Campbell, secretary of the local institute, under whose direction, aided by a small and energetic committee, the arrangements and decorations were carried out, deserve praise for their excellent results, and it is much to be hoped that future boards of the Fair management will see that the Women's Institute is fully represented in the events of future years.

A COOKING DEMONSTRATION AT COBOURG FAIR.

That educational attractions at fall Fairs do "attract" and are appreciated, was amply proven at Cobourg, by the numbers of ladies who crowded the Women's Institute tent at the time of the annual Fair, which was held on September 25th, 1903.

Previous to the time of the Fair, the secretary, Mr. R. Cullis, and the officers of the Women's Institute, requested the Superintendent of Fairs to send a lady who would be prepared to give some lessons in the cooking of foods, and also a talk on some phase of household science. Accordingly, arrangements were made for this demonstration, and the officers of the Fair erected on the grounds a neat, tidy tent, capable of accommodating about one hundred people.

At one end of the tent was a good-sized kitchen table, covered with a white cloth, and on this were arranged the spirit lamps and the various utensils required for the demonstration. A large bowl of fragrant flowers added a touch of the artistic and beautiful to the very practical subject of cooking. Some benches were provided, but these proved to be quite insufficient to accommodate the crowds of ladies who were anxious to see and hear what was going on in the tent. Gradually the ladies gathered until every seat was occupied; and still they came, old and young, until there was not even standing room left. So close was the attention and so keen the interest that very few left until the close of the meeting. There were a few men who were brave enough to venture in, and they appeared to be just as much interested as the ladies.

Mrs. James Dickson, of Cobourg, President of the West Northumberland Women's Institute, and Mrs. James Davidson, of Camborne, the Secretary-Treasurer, were on hand and were indefatigable in their efforts to please everybody, and to embrace every opportunity of furthering the work of the organization. Mrs. E. B. Hinman, of Grafton, and Mrs. Mark Fisher, of Cobourg, two former presidents of the Institute, were also in attendance and showed their continued interest in the work which owes its beginnings to their untiring efforts.

Shortly after the hour advertised for the demonstration to take place, Mrs. Dickson took charge of the meeting, and explained in a few words that the gathering was under the auspices of the Women's Institute, and that they would be glad to have any person join; also that they would be glad to explain to any interested persons the workings of the organization. Mrs.

Dickson then introduced the speaker who was to give the cooking demonstration, namely, Miss Jessie Hills, of Toronto, a graduate of the Toronto School of Domestic Science.

Unfortunately, the tent was placed in rather close proximity to the band stand, and, although those present fully appreciated the music they would rather have heard it at long range at that particular hour. For a short time it seemed as though it would be a race between the band and the speaker, but Miss Hills went bravely on, and won the day, keeping the interest of the entire audience until the close of the address.

"Cuts of Meat and Methods of Cooking" was the first subject taken up by Miss Hills, who explained in a very interesting and lucid manner the construction of meat and its properties as food. "Meat," said Miss Hills, "is composed of muscular fibres, connective tissue and fatty tissue, and is the chief source from which we obtain our nitrogenous foods." She then explained that the characteristics of good meat are—bright red color; fresh odor; firm,—not tough; well marbled with fat; fat not too white and not too yellow. "Do not think that tender cuts of meat, such as sirloin and porter-house steaks and roasts, are are most nutritious," said Miss Hills, "as it has been clearly shown that this is not the case. The neck, chuck roast and brisket really contain more nourishment than the cuts referred to."

A drawing, map, chart or picture, illustrating the subject under discussion, has been found by many public speakers to be a most useful adjunct, carrying information, as it does, through the eye-gate as well as the ear-gate. Realizing the truth of this, Miss Hills had placed the drawing of a cow in full view of the audience. This was sectioned so as to represent the various cuts of meat which may be purchased at any of our meat markets. The name of each cut was given, the price at which it usually retails, and the nutritive value of the different cuts.

The next step was the explanation of methods of cooking different cuts, and the reasons therefor. "For stew," said Miss Hills, "put the meat on in cold water, because cold water extracts the juice, and this is what you want to do when making a stew. When roasting meat be sure and have the oven good and hot before putting the meat in, and then reduce the temperature somewhat." It was also pointed out that pan-broiled meat was much more wholesome than when it was fried in fat. This is done by putting the steak on a smoking hot pan, without any fat whatever, leaving it for about ten seconds and then turning it. The steak must not be left more than about ten seconds or it will be sure to stick to the pan. Use a broad-bladed knife for turning the meat.

"Why is it necessary to have the oven very hot when first putting the roast in the oven?" someone asked. "When you roast a piece of meat you wish to retain the juices, and this can only be done by forming a 'case' around the meat, thus preventing the escape of the extracts. In roasting the principle of coagulation is made use of."

"Why would you not boil meat all the time?" asked another, to which Miss Hills replied: "Heat coagulates certain substances in the meat which are similar to the white of egg, and you know that the longer you boil an egg the harder and more celluloid-like it becomes." "Do you salt meat when putting it on to cook?" "No: salt draws the moisture. It is better to add salt and pepper when the meat is cooked."

Miss Hills then gave a short talk on "soups," drawing attention to the fact that the serving of soup at dinner was not merely a fad, but was one of the old customs of our forefathers which was based on a scientific principle. The partaking of soup as the first course at dinner acts as a stimulant to the

stomach, preparing it for the meal which is to follow. After explaining the making of soup stock, and the great economy that may be practised in this branch of the culinary art, Miss Hills stated that there were many kinds of appetizing milk soups which might be made when there was no stock on hand. Celery soup was the particular kind that Miss Hills selected for her demonstration. After boiling some pieces of celery she strained off the water, and added it to some milk which had already been heated. She then added a piece of butter, pepper and salt, and thickened the mixture with corn starch. A bowlful of soup was then passed around so that the ladies might taste and see what a palatable soup could be made on short notice.

"Celery is one of our best natural nerve tonics," said Miss Hills, "and if more vegetables were used there would be fewer druggists' bills to pay. Many people do not begrudge a dollar a bottle for a tonic, but they could not be persuaded to pay two or three cents extra for early vegetables."

"Parsley Butter" was the last thing made. This was simply putting a piece of butter in a bowl and rubbing it with a spoon until it was quite soft, and then adding some finely-chopped parsley. After pan-broiling a piece of steak and cutting it into small pieces, Miss Hills served it with the parsley butter. This was passed around to the audience, and from the various comments overheard one would judge that it was an excellent dish.

Quite a number of the ladies present wore the Women's Institute badge, but as the majority knew very little about the Institute, a short talk was given regarding the organization and its workings, and circulars were freely distributed, so that the officers are looking forward to a great increase of interest throughout the district, and hope that through this effort at the Fair their membership list may be greatly increased.

APPENDIX.

EARLY AGRICULTURAL SOCIETIES AND FAIRS.

By C. C. James, Deputy Minister of Agriculture.

The following notes are in continuation of the articles that appeared in the Appendix to last year's Fairs Report. The author will be pleased to receive at any time additional notes or references to articles on this subject. By collecting and preserving notes similar to these it is hoped that material will be accumulated to assist future historical writers in giving people a fitting recognition to agricultural work in our country's history.

Upper Canada Agricultural and Commercial Society.

The Upper Canada Gazette, of February 8th, 1806, contained the following notice:-

"The Upper Canada Agricultural and Commercial Society will meet in Cooper's Hotel, in York, on Saturday, the 22nd Feb., instant, precisely at 2 o'clock.

York, 13th February, 1806."

The Upper Canada Gazette of 10th January, 1807, stated that a meeting of the Upper Canada Agricultural and Commercial Society would be held at Moore's Hotel on Tuesday, the 13th inst., at two o'clock.

The same paper of 20th June, 1807, stated that His Excellency Governor Gore was dined by the Agricultural Society at Hon. Robert Hamilton's (Queenston).

It would appear, therefore, that at this time there were two distinct societies, one at Niagara and one at York. As we shall presently see, we may add a third, at The Head of the Lake.

From the following interesting note that appeared in The Upper Canada Gazette of 26 September, 1807, we may conclude that the York Society was not very old at the time. It was probably organized in 1805.

"Messrs. Printers: Through the medium of your Gazette I wish to enquire of the parties concerned, how the funds of the Agricultural and Commercial Society have been disposed of, and who is the Treasurer? The maxim 'be just before you are generous' has been departed from, for if I am rightly informed, the printer is yet unpaid for printing the Regulations and Institution of the Society. I am, etc., A. Member."

"To Correspondents. The editors are equally interested with the enquiring member of the Agricultural and Commercial Society, and equally in the dark respecting the dubious state of its funds."

The following has been kindly furnished by Mr. H. H. Robertson, of Hamilton.

Plan for a Board of Agriculture. Resolutions.

1st. That we do constitute ourselves into a Society for promoting the science of agriculture and carrying into effect the improved art of husbandry within our respective circle.

2nd. That the said Society shall be called by the name of the Burlington Board of Agriculture and shall be known as such.

Laws of the Board.

1st. That the Board shall sit annually on the first day of May, excepting when the first day of May shall fall on Sunday, in which case, on the Monday ensuing.

2nd. That the Board when met shall annually on the first day of May nominate and appoint by vote a Committee consisting of nine of the members of said Board, to transact such business as the Board shall think proper from time to time to lay before them.

3rd. At every such annual election not less than six of the then standing Committee shall be re-elected.

4th. The newly appointed Committee shall then annually elect a President and a Secretary for the Board.

5th. That a fund shall be established by an equal collection to be voted at the aforesaid meeting for the purpose of rewarding merit.

6th. The then standing acting Committee shall be the trustees for the Board, who shall have the disposal of such monies as shall be voted as in Article 5th (fifth).

7th. That the acting Committee shall appoint out of their members at the annual meeting a Cashier who shall annually render an account of all monies deposited into his hands with lawful interest on the same.

8th. That the acting Committee shall be the judges of the merits of the claimants for rewards, and shall have the power to assemble the Board as occasion may require, and likewise that of admitting new members. Provided always, that the applicants be free-holders of the Province and actual cultivators of the soil.

(Endorsed.)- Laws and Resolutions Relative to the Board of Agriculture. Established on Thursday, the first May, in the year of our Lord one thousand eight hundred and six. (Sd.) TITUS GEER SIMONS, Sec'y.

An interesting sketch of the Secretary Titus Geer Simons by Mr. H. H. Robertson will be found in the Transactions (No. 4) of the U. E. Loyalist Society of Toronto, 1903.

Burlington Bay, 1827.

The following entry is taken from the Journal of Col. Mahlon Burwell, Land Surveyor, as quoted by Mr. Archibald Blue in a sketch of his life:

"Sept. 19th, 1827. Met Mr. Galt near Guelph, who invited me to dine on Friday, the 21st inst., at his house near Burlington Bay."

"Sept. 21st. Went to dine with Mr. Galt at his house -was civilly treated—an Agricultural Party. Mr. Galt proposed that I should be a member of the Agricultural Society of which he is the head. I declined. Did not know that it was an Agricultural Meeting until after the cloth was removed. Left Mr. Galt's about 10 o'clock p. m., and slept at Mr. Beasley's."

Home District Society.

On pages 126-8 of last year's Report I gave the minutes of a meeting for organization held at York on the 30th of May, 1830. It would appear that at least one meeting had been held previous to this, on 25th of March, and I give the record as it appeared in The Christian Guardian of 3rd April, 1830. This meeting adjourned to meet on the 8th of April, so that probably other meetings may have been held previous to that referred to in the Report of last year. By comparing the two accounts it will be seen that the pre-

liminary work was done by the township farmers, but that the officers were mainly drawn from the leading citizens of the town of York.

Home District Agricultural Society.

At a meeting held at Mr. John Wilmot's Inn, corner of Dundas and Yonge streets, on Thursday, the 25th of March inst., pursuant to public notice, for the purpose of organizing an Agricultural Society for this District; Mr. John McFarlane, of Etobicoke, was called to the chair, and the following resolutions were adopted:

Resolved, 1. That in the opinion of this meeting the formation of Agricultural Societies in the several districts will great contribute to the improvement of the Agriculture of his Province.

Resolved, 2. That an Agricultural Society be established in this District to be called "The Home District Agricultural Society." The following resolutions were then read and deferred for the consideration of the next meeting:

Resolved, 1. That the direction of the concerns and interests of the Society be placed under the superintendence of one President, two Vice-Presidents, a Treasurer, Secretary, and ten Directors, all ordinary members of the Society, forming a permanent committee of fifteen, seven of which, the President or one of the Vice-Presidents included, be competent to proceed to business.

Resolved, 2. That the President, or, in his absence, either of the Vice-Presidents, shall preside at the sittings of the permanent committee and at general meetings, there to put to vote, after discussing all written or verbal propositions offered by any of the members present, and in case of an equal division, the person who presides shall have a casting vote.

Resolved, 3. That the Officers and Directors elected, shall continue in office for one year. There shall be two general meetings of the Society annually, viz.: on the.....Monday of.....and on the.....Monday of .....in each succeeding year. The election of members composing the permanent committee shall be by a plurality of votes at the general meeting in.....and five at least of the members who have served the last year shall be re-elected.

Resolved, 4. That the general meeting may admit or reject such persons as are presented to become either honorary, ordinary, or corresponding members of the Society; receive the reports of the permanent committee, and deliberate and decide as well on these reports as on all other verbal or written propositions made by any of the members present.

Resolved, 5. That the permanent committee shall meet at least four times in the year and oftener if necessary; that it shall draw up and publish Agricultural Reports for the District from time to time. That it shall examine and give its opinion of the merits of such written communications as may or shall be addressed to it; shall regulate in what will consist the annual prizes, which the Society shall distribute, for what object, and on what conditions they are granted; shall decide on the pretensions of the candidates claiming them, and generally regulate all matters connected with the institution.

Resolved, 6. That, the more effectual to promote the views of the Society, each of its ordinary members shall, on his admission, pay to the Treasurer not less than five shillings, currency, and the like sum annually previous to the general meeting of.....at which the Treasurer shall re-

port the names of such members as may have neglected to pay their subscriptions: and in all such cases their right of deliberating in the permanent committee, if they should be members of it, or at general meetings, shall be suspended until they shall have paid; and in case of a failure of making the second payment the following year, the Treasurer shall report the same at the general meeting, which may expel defaulters.

Resolved, 7. That the implements of husbandry and seeds which may be furnished to the members of the Society, shall be at the prime cost and charges.

Resolved, 8. That the Members of the Legislative Council and House of Assembly, residing in the Home District, shall be honorary members of this Society.

Resolved, 9. That persons not residing in this district, who shall have made communications to this Society, and which the committee shall have judged to be important and useful; and of which it shall have made a favorable report, may be proposed at a general meeting, as honorary and corresponding members, and may be elected as such at the ensuing general meeting, should a majority of the members present at such meeting vote for them, and may assist at all general meetings without paying the annual subscription, or receiving any prizes or premiums offered by the Society.

Resolved, 10. That a donation of £..... in aid of the Society's funds, shall constitute a member for life.

Resolved, 11. That it is expedient that the communications of members of the Society shall not be confined merely to agricultural details, but may be extended to geographical and statistical accounts of the district.

Resolved, 12. That no alteration or new regulation in the Society's rules shall be made but at the general meetings of the Society.

Resolved, 13. That the committee of management be instructed to draw up such additional rules for the government and regulation of the Society, as they may deem necessary, and report them to the next adjourned meeting.

Resolved, 14. That the committee of management be instructed to present a humble address to His Excellency Sir John Colborne, in the name of the Society, humbly requesting that His Excellency would honor the Society by becoming its patron.

After which the following resolutions were adopted by the meeting:

Resolved, 1. That Messrs. Joseph Shepard, James Cockshut, Charles Baker, John Somerset, John Macfarlane, James Doyle, Reuben A. Parker, and Edward Thompson, be a committee to solicit subscriptions to the funds of the Society, and report to the next general adjourned meeting.

Resolved, 2. That the editors of The Gazette, Observer, Advocate, Guardian, Courier, and Freeman, be invited to give the proceedings of this meeting, and the notice of the adjourned meeting a place in their respective journals.

Resolved, 3. That this meeting do now adjourn to Thursday the 8th of April next, then to meet at four o'clock in the afternoon, in the Grand Jury Room at the Court House.

(Signed) JOHN MACFARLANE,
Chairman.

JAMES DOYLE,
Secretary.

The following notice appeared in The Canadian Freeman of Dec. 3rd, 1830:—

Notice is hereby given that a meeting of the Directors of the Home District Agricultural Society will be held at the Court House on Saturday, the 18th instant, at 12 o'clock noon for the purpose of taking into consideration a communication from His Excellency the Lieutenant-Governor on the subject of Roads.

J. ELMSLEY, Sec'y.

York, 1 Dec., 1830.

The following is the report of the result of that meeting:—

Sir:—At the last meeting of the Agricultural Society of the Home District convened for the purpose of taking into consideration a communication from His Excellency the Lieutenant-Governor on the subject of Roads, it was resolved that a Committee be appointed to draft a circular comprising the matter submitted to the Society by His Excellency, and that two directors for each Township should lay it before the inhabitants assembled at the Town meeting on the first Monday in January next; and that the said directors be instructed to report to the Society on or before the tenth day of January next, the opinion of the several meetings on the same by post or otherwise to the Secretary.

Pursuant to this resolution, I have the honor to enclose you a circular expressing the views of the Committee and to acquaint you that the Society have named you as the person to attend the Township meeting and to communicate to me the result.

I have the honor to be, Sir, your obedient servant,

J. ELMSLEY, Sec'y.

To Messrs. Jas. Hogg, Director, and J. Vanallen, Town Clerk, York Township.

R. C. Gaffer, B. Thorne, Directors, and W. Nichols, Town Clerk, Markham.

E. O'Brien, W. Gaffer, Directors, and ....., Town Clerk, Vaughan.

C. B. Sheldon, R. Burr, Directors, and ....., Town Clerk, Whitechurch.

S. Ferrel, W. Thompson, Directors, and Wm. Davinish, Town Clerk, Scarboro'.

F. Leys, G. Barclay, Directors, and W. Sleigh, Town Clerk, Pickering.

Farewell, McDonald, Directors, and W. T. Moore, Town Clerk, Whitby.

W. Webb, J. Plank, Directors, and Isiah Chapman, Town Clerk, Uxbridge and Reach.

M'Cleod, Cosford, Loyd, Directors, W. Haynes, Town Clerk, King.

J. Lout, F. Phelps, Directors, and A. Goodfellow, Town Clerk, W. Guillimbury.

A. Smally, J. Draper, Directors, and D. Spragge, Town Clerk, N. Guillimbury.

G. Holinshed, J. Doan, Directors, and ....., Town Clerk, E. Guillimbury.

F. S. Jarvis, Colonel Adamson, Directors, and J. Hawkins, Town Clerk, Toronto.

J. Boyce, J. W. Gamble, Directors, and A. Wilcox, Town Clerk, Etobicoke.

J. Bourchier, W. Johnson, Directors, and ....., Town Clerk, Georgina.

B. Mungla, J. Maxwell, Directors, and ....., Town Clerk, Chingaucousey.

Finch, ..., Directors, and J. Hudson, Town Clerk, Albion.

N. Gager, ..., Directors, and H. Bigelow, Town Clerk, Tecumseth.

J. Lelts, Hutchinson, Directors, and J. Wixon, Town Clerk, Brock.

F. Hewson, D. Soles, Directors, and ....., Town Clerk, Innisfil.

CIRCULAR.

To the inhabitants of the Township of

The attention of the Home District Agricultural Society having been turned to the subject of the present state of the roads in consequence of a communication from His Excellency the Lieutenant-Governor, it has been thought desirable to obtain from the inhabitants of each Township an expression of the opinion as to the advantages that might be derived, from an alteration of the present system of making and repairing the Roads.

The change proposed is, that in lieu of the Statute Labor performed as the Law now stands, each District authorized by Legislative enactment to commute its Statute Labor at the rate of 2s. 6d. for each day's labor due for persons assessed for £50 and upwards and at the rate of 2s. for every day's labor due from persons assessed under £50. The money to be laid out in the Township in which it is levied.

It has also been deemed expedient to suggest that great advantage would be derived generally if some of the leading roads, as Yonge and Dundas streets, which have now become great thoroughfares, were turnpiked; which, if carried into effect, would only impose a tax at the Toll Gates upon those travelling so turnpiked; while the money raised for Statute Labor would be wholly applied to keeping in repair the Township roads.

PET. ROBINSON,
ALEX. WOOD,
J. ELMSLEY,
Committee.

"Home District Agricultural Society—The Cattle Show under the auspices of this Society, was held in this town, on the Court House ground, on Thursday last. The competition, upon the whole, we are informed, was not very spirited. There were only two entire horses entered, the one bred in the Home District, belonging to Mr. Bloor; the other imported, owned by Mr. Mayers. Of course they got both the premium. Mr. D'Arcy Boulton got the premium for the best breeding mare; Mr. Musselman for the second best; Mr. John Hartman, of Newmarket, third ditto. The cows entered for competition are said to have been generally inferior—inferior to many in the district not entered. We know not who got the premiums. The sheep were good. The premium was contested between the Hon. P. Robinson and Mr. Atkinson, of Yonge street. Which was successful we are not informed. Mr. Parsons, of Yonge street, took the premium for the best Boar; and Mr. John Hartman, of Newmarket, for the best sow. One person brought some Cider, and of course took the premium, as there was no competition. There was no flannel, linen, cheese, etc., entered.

"The object of the Society is an important one, and with proper management, will doubtless contribute much to improve the agriculture of the country. We are informed, however, that the proceedings of the Society

have not given perfect satisfaction in some respects;—that the regulations of the Society having been inserted in only a part of the newspapers extensively circulated in the Home District, were unknown to many who might have obtained premiums; and that a petition will be presented to the Provincial Parliament at its next session for the usual assistance to form a separate Agricultural Society at Newmarket. This application, we understand, is encouraged by His Excellency the Lieutenant-Governor."—From The Christian Guardian, Oct. 22, 1831.

The following is a copy of the report of the organization of the Midland District Society at Kingston in 1830. It is set up from the original printed report, a copy of which was some years ago given to the writer by Dr. William Canniff:

MIDLAND DISTRICT AGRICULTURAL SOCIETY.

At a Meeting of the Inhabitants of the Midland District, held at the Court House in the Town of Kingston, on Tuesday, the 27th of April, 1830,

H. C. Thomson, Esq., in the Chair,

H. C. Smith, Esq., Secretary.

A form of a Constitution for an Agricultural Society, to be called "the Midland District Agricultural Society," was read and submitted to the meeting for approval.

The meeting adjourned until 7 o'clock on Wednesday evening.

Wednesday Evening.

The Meeting convened pursuant to adjournment,

H. C. Thomson, Esq., in the Chair,

G. W. Yarker, Esq., Secretary.

The following Constitution was read, & adopted unanimously.

Constitution.

Of the Midland District Agricultural Society, Adopted at Kingston, April 28, 1830.

1. A Society shall be formed and established in this District to assist in carrying into effect the patriotic and judicious views of the Legislature for "the general improvement and prosperity of the Province," which Society shall be called the "Midland District Agricultural Society."

2. The affairs of the Society shall be conducted by a general Board of Directors, consisting of a President, five Vice-Presidents, thirty Directors, a Treasurer and a Secretary, who shall hold their offices for one year, and be elected annually at the general Meeting of the Society to be holden at Kingston on the first day of the Quarter Sessions in each and every year—One Vice-President and six Directors shall be elected from each of the five Counties in the Midland District. The President, Secretary and Treasurer may be selected indifferently from any County in the District.

3. The General Board of Directors shall meet four times in the year, viz., on the first day of holding the Court of Quarter Sessions, in January, April, July and October at Kingston and Adolphustown alternately, and shall then prepare and publish a concise quarterly report of the state of Agriculture in the District if expedient. They shall also prepare a report of the proceedings of the Society to be annually submitted at the general meeting of the members, with the accounts of the Treasurer—at their quarterly meetings, the President (or in his absence one of the Vice-Presidents)

and seven Directors shall form a quorum for the transaction of business—all questions shall be decided by a majority of votes, and in case of an equal division upon any question discussed at such meetings, the presiding officer shall have a casting vote.

4. County meetings shall be held four times in the year by the County Board consisting of the Vice-Presidents and Directors of each County at a convenient time before the holding of the Court of Quarter Sessions, and at such meetings the said Vice-Presidents and Directors shall draw up and duly transmit to the Secretary of the Society a report of the state of Agriculture and the prospects of the crops within their respective limits, together with any other general observations they may think proper to communicate. Any three officers shall form a quorum at the County Boards for the transaction of business, and they shall have power to choose their own Secretary in each County. The Vice-President, if present, shall take the chair, and in his absence the Directors may elect a Chairman for the occasion.

5. There shall be one meeting annually in each County to be holden in the month of October, on such a day as the Vice-President and Directors for the respective Counties shall fix upon, for the exhibition of cattle, &c., and for ploughing matches. All such meetings shall be under the Direction of the Boards for the respective Counties, who shall appoint the Judges and distribute the prizes that may be assigned for the occasion by the General Board.

6. There shall be one general District Meeting for the exhibition of cattle and competition for prizes, to be holden annually in October at such place and day as may be fixed on by the General Board. The General Board shall have the superintendance of this meeting, shall appoint the Judges, and distribute the prizes according to the award of the Judges.

7. At all exhibitions, three Judges shall be required, and none but members of the Society shall be chosen as Judges.

8. All persons who are bona fide residents within the District may become candidates for prizes, whether they be members of the Society or not.

9. The General Board of Direction shall apportion the prizes for the County and District exhibitions, according to the state of the funds, and shall furnish sufficient public notice of the amount of the prizes to be given, and for what they are to be given.

10. The names of the successful candidates and the premiums they have received, and for what received, together with the other proceedings of each meeting, shall be published in the newspapers, under the superintendence of the Secretary to the Society.

11. The prizes shall always be awarded in live stock, grain, grass seeds, and useful implements of husbandry, or works on Agriculture of established merit to the extent of the annual grant from the public funds.—Should the amount to be awarded for prizes at any times exceed the said annual grant, the general board of direction may if they see fit, award prizes for the surplus in money.

12. The general Board of Direction may sell any implements of husbandry, seed, or other articles imported for the Society at prime cost and charges, when such articles are not required for immediate use at the annual exhibitions, the proceeds thereof to be applied to the general uses of the Society.

13. Each Member of the Society shall, on his admission, pay to the Treasurer, not less than five shillings currency, and the like sum annually previous to the general meeting in each and every year, at which meeting the Treasurer shall report the names of such members as may have neglected

to pay their subscriptions, and in all such cases the right of members so neglecting to pay their subscriptions to vote at general meetings shall be suspended.

14. A Donation of five pounds in money or useful articles in aid of the Society's funds shall constitute the person making it a member for life.

15. The accounts of the Society shall be open for inspection at the quarterly meeting held in April and October, and shall be balanced and audited at the general annual meeting for the election of officers and the transaction of other business.

16. The funds of the Society shall be exclusively appropriated to objects connected with it in conformity to its rules, and the act of the Legislature passed at the late session of Parliament to encourage the establishment of Agricultural Societies in the several Districts of this Province.

17. The General Board of Direction shall publish the proceedings of the Society in form of a pamphlet once a year, if it shall be deemed expedient by the members present at the general annual meeting.

18. The General Board shall have power to meet at such times and places as they may deem fit, upon a requisition signed by the President (or in his absence a Vice-President) and the Directors—previous notice thereof shall be given for the space of seven days in the newspapers of the District. The County Boards may also hold meetings where they deem fit on a written or verbal notice being given by any two of the members to the others at least 7 days before the time fixed for the meeting.

19. The General, District, and County Boards shall be empowered to frame bye-laws and regulations for their own guidance and conduct as they may see fit, provided that no infringement be made on the fundamental rule of the Institution, established by the members at their general meetings.

20. As soon as it may be found practicable a library shall be formed for the use of the Society, to consist of the most approved and useful works on agriculture and domestic economy—which library shall be under the care of the General Board, and be subject to such regulations as the said Board may consider expedient for its preservation.

21. Donations of books suitable for the library shall be received with due acknowledgment by the General Board.—Donors residing out of the District shall receive the thanks of the Society, and may be proposed and elected honorary members thereof.

22. Written communications addressed to the Secretary of the Society relative to agricultural subjects, or to the Statistics of the District shall be thankfully acknowledged, and if found to possess merit, shall be appended to the annual report of the Society. Persons residing without the limits of the District, who may make important and useful communications to the Society, may be proposed and elected honorary members at the general Meeting.

23. These rules and regulations shall not be altered or amended except at general meetings of the society.

John Macaulay, Esq., was elected President. David J. Smith, Esq., Treasurer, and H. C. Thomson, Esq., Secretary of the Society.

Resolved, That in order to form the first Board of Officers of the Society, the undermentioned Gentlemen, viz., Isaac Fraser, Esq., Addington, Allan McPherson, Esq., of Lennox, Asa Worden, Esq., of Prince Edward, and William Bell, Esq., of Hastings, be requested to call meetings in their respective Counties, and make a return to the Secretary of the names of the per-

sons who may be chosen at such meetings as Vice-President and Directors of the said Counties respectively.

Resolved, That the following gentlemen be Vice-President and Directors for the County of Frontenac, viz., John Marks, Esq., Vice-President—and Messrs. Samuel Aykroyd, Lambert Vanalstine, Duncan Beath, John Campbell, Jacob Shibley and James Powley, Directors.

Northumberland County.

The following interesting sketch of the organization of an agricultural society in 1828 in the County of Northumberland was prepared by Mr. Walter Riddell, sr., of Cobourg, and was printed in The Cobourg World of 25 Oct., 1901:

The first Agricultural Society organized in the County of Northumberland was formed at S. S. Kent's tavern, Cramahe, on the 17th of May, 1828. As their names deserve to be held in remembrance by the farmers of the county we give the list of those elected at the first general meeting of the society held at John Grover's Inn, Haldimand, on the 18th of May, 1829. Benj. Whitney, president; Capt. Spilsbury and Chas. Powers, vice-presidents; Jos. A. Keeler, treasurer; John Steele, secretary; directors—Messrs. William Faulkner, Henry Ruttan, Zaccheus Burnham, John Burnham, Arch. McDonald, Jas. G. Bethune, John Fraser, Chas. Roubridge, Benj. Cumming, James Lyons, M.P., Benj. Ewing, M.P., Shelden Hawley, John Grover, John Kelly, Ephraim Doolittle, Ozen Srong, Jas. D. Goslee, David Brodie, Levi Samis and Isaac Proctor.

The society held its first show at Colborne on Oct 19, 1829, when the following prizes were awarded:—Best stallion, 1 Chas. McKenzie, Haldimand, $8; 2 Ira Brown Cramahe, $4. Bull, 1 Chris. Hinds, Hamilton, $8; 2 Truman Hinman, Haldimand, $4. Brood mare, 1 Joshua Webster, Cramahe, $5; 2 Ira Brown, Cramahe, $3. Milch cow, 1 Bayes M. Eddy, Haldimand, $6; 2 Peter Alger, Cramahe, $4. Working ozen, 1 Elijah Buck, Hamilton, $6; 2 Peter Alger, Cramahe, $4. Boar, 1 J. A. Keeler, $4; 2 2 C. Powers, Haldimand $2. Ram, 1 Gardiner Waite, Haldimand, $4; 2 Capt. Spilsbury, R.N., Cramahe, $2. Field Roller, 1 C. Powers, Haldimand, $2; 2 Jos. Keller, Haldimand, $1. Two cheeses, 1 Palmer Crandell, Cramahe, $2; 2 T. M. Spalden, Haldimand, $1. Best written essay on the culture of wheat, 1 Joshua Webster, Cramahe, $5; Chas. Powers, Halidmand, $3. There were premiums offered for ewes, butter, and ploughing, but no candidates appeared (except one man to plough). The prize essays on the culture of wheat were read to the meeting and ordered to be printed.

As was the custom of that time the exhibition was followed by a public dinner at which about thirty gentlemen sat down to a plentiful repast, and after the cloth was removed the usual loyal and patriotic toasts were given, with some pithy and animated speeches, all tending to promote the social intercourse and happy convivality that prevalied during the evening. All expressed the hope that the next meeting would be as happy and agreeable as this one had been. They appointed their next show to be held in the village of Cobourg in May, 1830. We think this show was not held. We have never seen any account of it. A cattle show and ploughing match was held at Cobourg on May 18, 1831.

In 1830 this society offered premiums for the best crops of grain and potatoes. At a meeting held on the 5th of January, 1831, at Cobourg, the judges (Hon. Z. Burnham, H. Ruttan, and John Grover), would not award any premium on wheat or potatoes, as the exact quantities raised had not

been proved. They said the best sample of wheat shown was by Peter Alger, Cramahe. For Indian corn they awarded the first prize to Isaac Waite, 2nd to Truman Hinman, and 3rd to Jonathan Massey, all of Haldimand. They also awarded prizes for the best managed farms. For these there were twelve entries. 1 John Burnham, Hamilton, $10; 2 T. Dukinson, Cramahe, $8; 3 Elias Jones, Hamilton, $6; 4 Sisson Waite, Haldimand, $4; 5 R. Sandford, Cramahe, $3.

It would take too much space to give all the reports. We make room for the first prize farm report. "The judges say they were well pleased with the farm. That Mr. J. Burnham had amout 230 acres of improved land on his farm, all in the best state of cultivation, and had raised the following crops on it this year (1830), viz.: 22 acres of wheat, 20 acres of barley, 16 acres of corn, 21 acres peas, 6 acres of oats, 3 acres of potatoes, 14 acres of summer-follow, and 50 acres of hay, from which he supposed he got 60 tons of hay. The live stock on the farm was 7 horses, 1 yoke of working oxen, 18 milch cows, 60 head of horned cattle, 75 sheep and 40 hogs. The farm appears to be well-managed throughout. The fences, dwelling house, barns, office houses, are all of the best description and the crops generally very luxuriant for this year."

This society held another (and we believe its last show) at Colborne on the 19th of October, 1831, when premiums to the amount of $163 were awarded, also $134 for the ten best managed farms in the county. The judges on the farms were Ozen Strong, John Grover and Elijah Buck. We think this show finished the work of that society. We understand this society never got any Government grant nor any gate money, but depended on their subscriptions for their prize money, and other expenses.

We have always held in peculiar respect the memory of these enlightened and public spirited men, who at that early time formed and carried on for year (if not the first) at least one of the first agricultural societies formed in the Province, who without any help by their own unaided exertions, kept up this society for years, when this now rich, populous County of Northumberland, covered now with fine farms, with improved stock, elegant mansions, comfortable dwelling houses, suitable farm buildings, with many improved agricultural implements and machines, was, we suppose, three-fourths of it an unbroken forest, on which the pioneer had not yet lifted up his axe, still the home of the Indian. the haunt of the wild beast.

To show the enlightened views held by the farmers of this early agricultural society, we quote a few extracts from the introduction to their proceedings. "Agriculture is the only employment worthy the attention of all men, as it is most suitable to their nature. It is the grand source of health, strength and an innumerable train of honest pleasures and sober enjoyments. It is the best nursery for all the great and noble virtues that grace and dignity human nature. The objects this society embraces are great and manifold. It is designed for the instruction of our farmers, both in the theory and practice of agriculture and to give them a more thorough knowledge and better understanding of all things connected with the advancement of agricultural science, to encourage by the publication of all communications addressed to the society, which may be deemed useful and necessary, and the employment of the most approved implements of husbandry. The future, as well as the present prosperity of this Province will be in proportion to the advancement of its agricultural interests, which are and will be, the true and natural means of increasing its growth in every thing that is conducive to make it rich, populous and great."

County of Northumberland Agricultural Society.

"Agreeably to public notice, the third annual cattle show of this Society was held in the village of Colborne yesterday. The weather being rather gloomy and threatening, the number of animals exhibited was scarcely so great as that of last year. The show, notwithstanding, was numerously attended by the most respectable and distinguished agriculturists in the country. The different animals entered for Premiums were generally good, with the exception of Stallions; there was only one entered, and consequently there was no competition with, or premiums allowed to his owner.—The Swine exhibited on this occasion were excellent, and received the cordial approbation of the Judges, as well as the numerous spectators. The ploughing matches were well contested, although there were fewer competitors than those of the proceeding years."—From the Cobourg Star, Oct. 1831.

Kent County.

"I was at Amherstburg a few days ago via the Talbot Road, and was much delighted with the exertions and success of an Agricultural Society formed on that road last year in the County of Kent, the members of which reside, principally, in the townships of Raleigh and Romney. The Society, besides their own funds, received the £100 granted by the Statute, and sent one of their members with the money to an Englishman residing between Albany and New York, who imports and breeds English cattle. The person sent, purchased a full-blooded Durham Bull, two years old; one two-year-old and two yearling bulls, half Durham and half Devonshire; and a full-blooded Durham yearling heifer. On the arrival of these animals, the Society exposed them at public sale by Auction, and I believe that no persons were allowed to bid but the members of the Society; and such was the spirit evinced by them, that the full-blooded two-year-old Durham Bull sold to a member for 43 15s. C'y in ready money—the two-year-old half Durham and half Devonshire, on another for £31 5s—one yearling heifer for £26 10s. The purchase money goes into the funds of the Society, and is to be employed in the purchase of more cattle of different English breeds."—A correspondent of The Christion Guardian, York, July 23, 1831.

London District.

"Agricultural Society: At a meeting held at the Inn of George D. Spades, in the Village of St. Thomas, on the 20th August, pursuant to Public notice for the purpose of considering the propriety of forming a District Agricultural Society in the London District.

Benjamin Wilson, Esquire, was called to the chair, and Edward E. Warren, was appointed Secretary.

When the following resolutions were unanimously adopted:

1st. Resolved—That it is expedient to call a general Meeting of the Farmers of the London District at the Town of London, on Monday, the 10th October next, for the purpose of forming a District Agricultural Society.

2nd. Resolved—That notice be given throughout the District according to the foregoing resolution and that a general attendance at the said meeting of the Farmers be requested.

3rd. Resolved—That the Secretary of this meeting be authorized to give the necessary notice agreeably to the foregoing Resolutions.

4th. Resolved—That the proceedings of this meeting be published in The London Sun, The Western Mercury, and such other papers as the Secretary may think proper.

(Signed BENJ. WILLSON, Chairman,
E. E. WARREN, Secretary."

—From The Christian Guardian, Aug. 27, 1831.

Leeds County.

"Leeds Cattle Show—The show of cattle under the Provisions of the Constitution of the Leeds Agricultural Society took place on Tuesday last at Farmersville. The classes for premiums were mostly filled, and the animals brought forward, although not so numerous as might be wished, yet on the whole the competition was respectable and, considering the infant state of the society, fully as good as could reasonably be expected. We were, however, pleased to see that a considerable spirit of emulation was excited, which we hope will lead to a more extensive competition at a future period and be instrumental in materially promoting the agricultural interests. We shall give a list of the successful candidates in a future numbers."—Brockville Recorder (Oct. 1831).

Niagara District.

"The Niagara District Cattle Show and Fair was held at Chipawa Village on the 3rd inst. (May, 1831). It being a new thing the competition was not very strong. Horses were excellent—Cattle and sheep, etc., above mediocrity. The circumstances of the occasion and the distribution of the prizes appeared to produce a very favorable impression as to the valuable object of the Agricultural Society."

Montreal and Quebec Societies.

In 1819 there was published in London, England, a work entitled "Facts and observations respecting Canada and the United States of America, etc.," by Charles Frederick Grece, a member of the Montreal and Quebec Agricultural Societies. Mr. Grece had resided in Canada for sixteen years, and from 1807 to 1819 had farmed at Longue Point, near Montreal. In this book he refers to the fact that Agricultural Societies were established in 1817. He says (p. 90), "The present period is very propitious to the advancement of agriculture, as there are Societies established this year (1817) headed by persons of the first respectability, to promote a better management of rural economy." In the Appendix he gives in full the rules and regulations of the Montreal Agricultural Society as adopted at a general meeting held at the Court House on Monday, Oct. 20, 1817. The following officers were appointed to serve until January, 1819: President, The Hon. James Monk, Esq., Chief Justice; Vice-Presidents, J. L. Papineau, Esq.; William Hallowell, Esq.; Treasurer, Horatio Gates, Esq.; Directors, John Gray, Esq.; Austin Cuvillier, Esq.; Samuel Sherwood, Esq.; George Platt, Esq.; Toussaint Pothier, Esq.; Thomas Porteous, Esq.; Joseph Perrault, Esq.; David Stansfield, Esq.; Charles F. Grece, Esq.; Frederick Pursh, Esq.; George Clarke, Esq.; Henry Griffin, Esq., Sec.

It would appear that the earlier societies organized in 1788-89 must have been allowed to lapse, probably during the war time of 1812-14, and this

gives the date of their revival, 1817. In the list of directors above given is included the name of the distinguished Russian botanist, Frederick Pursh, then living in Montreal. He was born at Tobolsk, Siberia, in 1774, and came to America to study the flora of this continent. In 1814 he published his celebrated work on "A Systematic Arrangemnet and Description of the Plants of North America." This work, in two volumes, is now quite rare. He died at Montreal 11th June, 1820.

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